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# THE IMPACT OF POLICY REFORM ON THE RICE SUBSECTOR IN EGYPT

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| | |
|---|---|
| ACC | Agricultural Commodity Council |
| APCP | Agricultural Production and Credit Project |
| APRP | Agricultural Policy Reform Program |
| ARC | Agricultural Research Center |
| CAAE | Central Administration for Agricultural Economics of MALR/EAS |
| CAPMAS | Central Agency for Public Mobilization and Statistics |
| C&F | Cost and freight |
| CIC | Cereals Industry Chamber (of the Egyptian Federation of Industries) |
| CIF | Cost, insurance and freight |
| COMESA | Common Market for Eastern and Southern Africa |
| EAS | Economic Affairs Sector (of MALR) |
| EE | Eastern Europe |
| EEPC | Egyptian Export Promotion Center (of MFT) |
| EFI | Egyptian Federation of Industry |
| EIHS | Egypt Integrated Household Survey |
| EPIQ | Environmental Protection Indefinite Quantity Contract |
| ERS | Economic Research Service (of USDA) |
| ESA | Employee stakeholder association(s), a form of privatization |
| EU | European Union |
| FAO | Food and Agriculture Organization (of the United Nations) |
| FAS | Foreign Agricultural Service (of USDA) |
| fd. | Feddan (equivalent to 0.420 hectares or 1.037 acres) |
| FIHC | Food Industries Holding Company |
| FOB | Free on board |
| FSRU | Food Security Research Unit of APRP |
| GASC | General Administration for Supply Commodities (within MSIT) |
| GATT | General Agreement on Tariffs and Trade |
| GDP | Gross Domestic Product |
| GOEIC | General Organization for Export and Import Control |
| GOE | Government of Egypt |
| HC | Holding Company |
| HC-RFM | Holding Company for Rice and Flour Mills |
| HE | His Excellency |
| IFPRI | International Food Policy Research Institute |
| kg. | Kilogram |
| LE | Egyptian Pound |
| MALR | Ministry of Agriculture and Land Reclamation |
| MEIC | Ministry of Economy and International Cooperation |
| MELES | The Middle East Library for Economic Services |
| MFT | Ministry of Foreign Trade (formerly MEFT) |
| MPE | Ministry of Public Enterprise |
| MPWWR | Ministry of Public Works and Water Resources (former name) |

| | |
|---|---|
| MSHT | Ministry of Supply and Home Trade |
| mt | Metric Ton |
| mmt | Million Metric Tons |
| MVE | Monitoring, Verification, and Evaluation Unit of APRP |
| MWRI | Ministry of Water Resources and Irrigation |
| NIS | Newly Independent States (of the former Soviet Union) |
| NPC | Net Protection Coefficient |
| PBDAC | Principal Bank for Development and Agricultural Credit |
| RDI | Reform Design and Implementation Unit of APRP |
| RRI | Rice Research Institute (of Egypt's Agricultural Research Center) |
| RTTC | Rice Technology and Training Center (in Alexandria) |
| SGS | Société Générale de Surveillance |
| S&O | Situation and Outlook (reports and reporting) |
| UR-GATT | Uruguay Round, General Agreement for Tariffs and Trade |
| USAID | United States Agency for International Development |
| USDA | United States Department of Agriculture |
| WTO | World Trade Organization |

## PREFACE

This report is the final MVE impact assessment on the rice subsector in Egypt. It is an expanded version of a presentation given on 3 June 2002 at the APRP/MVE Unit Impact Assessment Conference, held in Cairo from 1-4 June 2002. It is not an exhaustive treatment of developments in the rice subsector over the life of the policy reform program. The reader is referred to earlier MVE impact assessment reports (three on rice) for details.

> Holtzman, John and Abdel-Rahim Ismail with Samar Maziad and Sherif Fayyad. **Rice Subsector Baseline Update II**. MVE Unit - APRP, Impact Assessment Report No. 18. Abt Associates Inc. Cairo, Egypt. February, 2002.
>
> Holtzman, John, in collaboration with Abdel-Rahim Ismail and Sherif Fayyad. **Rice Subsector Baseline Update**. MVE Unit - APRP, Impact Assessment Report No. 10. Abt Associates Inc. Cairo, Egypt. January, 2000.
>
> Holtzman, John, in collaboration with Charles Stathacos and Abdel-Rahim Ismail. **Rice Subsector Baseline Study.** MVE Unit - APRP, Impact Assessment Report No. 3. Abt Associates Inc. Cairo, Egypt. March, 1999.

This final rice impact assessment report is meant to be a synthesis of findings over 5.5 years of following policy reform and changes in subsector structure, conduct and performance of the rice subsector in Egypt. It highlights the impacts of the APRP policy reform program, as well as regulatory and policy changes that were not part of APRP but affected the rice subsector. The paper also includes a statistical annex with numerous updated tables on rice production, prices, milling, and exports that appeared in the previous three reports.

## ACKNOWLEDGMENTS

The principal investigator and author of this study is John Holtzman. He was ably assisted by Dr. Abdel-Rahim Ismail of Zagazig University, who has worked on the rice subsector with the MVE Unit since 1997. Dr. Abdel-Rahim has led all the field work on rice trading, milling and prices since 1997. He has conducted numerous interviews with public officials, ESA rice milling company managers, private traders, millers and exporters, and other key informants. He has produced timely and succinct interview notes that have provided useful raw material for the rice subsector reports.

Samar Maziad also provided able research assistance. Dr. Sayed Haggag of MSHT provided wholesale and retail rice price data. Yvonne Azer was responsible for text editing and final formatting of the report. Maggie Nabil assisted in table and graph creation. Dr. Gary Ender, MVE Chief of Party, provided several excellent reviews of report drafts.

The authors also wish to acknowledge Dr. Morsy Ali Fawzi of the MVE Unit for making available detailed tabulations of the data from a sample survey of 745 farms, carried out in October-November 2001. This data set is a wealth of valuable information about producers' cropping patterns, input use, crop disposal, and returns to alternative crops and rotations.

MVE also wishes to acknowledge the ongoing support and encouragement of Dr. Hussein Soliman, APRP Program Director, and Dr. Mohamed Omran of USAID's Competitiveness and Agricultural Development Division.

The MVE Unit benefitted from and continues to benefit from collaboration with the following organizations and groups:

- the MALR, particularly the Rice Research Institute and the Economic Affairs Sector
- the Rice Branch of the Cereals Industry Chamber (Alexandria)
- the Rice Subcommittee of the Agricultural Commodity Council
- the Rice Technology and Training Center (Alexandria)
- MFT/GOEIC (which assembles and tabulates export statistics)
- the Food Industries Holding Company
- ESA rice milling companies
- private commercial rice millers and exporters
- private paddy wholesale traders
- CAPMAS (rice trade statistics)
- APRP/RDI Unit, which has been working to develop a website for Egyptian rice price data.

Individuals from these groups generously offered their time, provided detailed information, and answered numerous questions. Without the combined input of all of the aforementioned key informants, this study would not have been possible. The MVE Unit alone is responsible for any errors and omissions. The findings and conclusions of this study are those of the MVE Unit alone and not of APRP as a whole or USAID.

# EXECUTIVE SUMMARY

This *Endline* study is a final assessment of the impact of APRP policy benchmarks and implementation programs on the Egyptian rice subsector. This assessment is based on an examination of the changes over the life of APRP in the structure, conduct and performance of the subsector, with attention to the rice milling and export industries. The *Endline* also offers policy recommendations and suggestions for future applied research and monitoring.

## Progress in Liberalization and Privatization

Under APCP, the rice marketing system was liberalized quickly and decisively in 1992/93, leading to significant private sector entry into paddy assembly, paddy and rice wholesale trading, rice exporting, and, with a lag of 2-3 years, rice milling. Key features of this liberalization were that farmers' compulsory deliveries were abolished and prices were freed to vary with supply and demand at all levels of the marketing system. At the beginning of several marketing seasons under APRP, the MALR has declared minimum producer paddy prices. Without compulsory procurement, the GOE could only influence prices levels by ensuring that the public/ESA milling companies obtained adequate and early finance with which to buy large quantities of paddy at the suggested prices.

Unfortunately, privatization lagged liberalization by 5-6 years, which crippled MPE and Holding Company efforts to sell to anchor investors or to sell shares on the stock market. These efforts failed in 1997 and led MPE to consider the ESA privatization method, which had worked well in public works and land development companies in the mid-1990s. Seven ESA privatizations were completed in 1998/99. Since privatization, ESA mills have never operated at more than 25% of capacity, and only three companies have ever turned a profit. The ESA mills continue to be dominated by the Food Industries Holding Company, which convenes a weekly meeting in Cairo of ESA mill managers, controls their Boards of Directors, secures finance for the ESA mills, and brokers export deals on their behalf. Access to public bank credit gives ESA mills a competitive advantage vis-à-vis private sector mills, which often cite lack of liquidity as a constraint to expanding their operations.

## Changes in the Structure, Conduct, and Performance of the Rice Subsector under APRP

The rice industry continued to mature under APRP, following initial liberalization progress during APCP. Private sector shares remained high in paddy assembly, milling, rice distribution, and export. Private firms continued to enter all stages of the rice subsector, although there was some exit, particularly of private sector commercial mills. Firm conduct or behavior within industries and between subsector stages remained competitive, despite GOE and FIHC efforts to keep the public/ESA mills operating at a reasonably high level of capacity, which clearly put competitive pressure on private sector commercial mills. Subsector performance overall was strong, and the rice subsector was often cited as a model for market liberalization in Egypt. Rice trade and milling created many employment opportunities for workers based in rural areas and small towns in the Delta. The fact that these opportunities were found outside overcrowded major metropolitan areas (Cairo, Alexandria) and largely outside governorate centers was very positive, helping to increase rural and secondary town incomes and keep income and workers in those rural areas.

The rice subsector did experience some problms, however. GOE interventions in the market, typically in the form of announcements about anticipated producer paddy prices, export levels, and export subsidies, tended to de-stabilize the market, leading to behavior that pushed up prices faster than they would have risen and exacerbating emerging scarcities. Paddy and rice price volatility, partly a function of underlying domestic supply and demand conditions, partly due to poor information about the paddy crop size, and partly exacerbated by GOE announcements that de-stabilized the market, hurt the competitiveness of Egyptian rice exports during certain years, pushed up domestic prices to levels that hurt domestic consumers, and led, by some accounts, to windfall gains to storage by wholesale traders. This price volatility accentuated year-to-year swings in paddy area planted and bewildered many farmers. In response, exporters and large millers called for stabilization of paddy prices in the spring of 2002 and organized to prepare a proposal to the GOE for using one agency, probably the rice marketing cooperatives, to serve as the sole procurement body, thereby doing away with the private trade. While the desire for greater price stability following several years of significant fluctuation is understandable, the MVE Unit does not recommend abolishing the private trade and putting procurement solely in the hands of one agency.

Unlike the cotton subsector, the rice trade was not subject to administrative allocation of market shares under APRP or to private sector collusion to fix prices or maintain domestic or export market shares. Concentration in the paddy trading, rice milling, and rice export industries was relatively low and actually declined over the life of APRP, whereas cotton ginning and export remained concentrated, with high public sector shares and greater concentration in the private sector dominated segments. Competition in rice milling and export led to investments in better cleaning and sorting equipment at larger mills and innovations in packaging and promotion, particularly targeting export markets.

**Impact of APRP**

Liberalization of the rice trade took place largely under APCP, the predecessor project. The fact that the GOE largely stayed the liberalization course during APRP and avoided back-sliding is a testimony to its political commitment to complete liberalization of this subsector. One of APRP's main achievements lay in encouraging MPE to privatize the public rice milling companies, and in providing some post-privatization training to ESA mill managers, and in assisting the MALR and MWRI to manage scarce irrigation water resources better, particularly in cultivation of short-season rice varieties. APRP played an important role in coordinating irrigation schedules as new short-season rice varieties were introduced to large numbers of farmers along major irrigation canals in the Delta.

Another significant APRP achievement was in helping to create, and in providing partial funding for, the Agricultural Commodity Council. One of the first and strongest Subcommittees to emerge was the Subcommittee for Rice and Grains, which became an articulate and convincing advocacy organization for the rice industry, particularly for exporters and large commercial millers. In January 2001, the Rice Subcommittee was able to convince the MFT of the need for export subsidies to move surpluses from the summer 2000 crop in an international market characterized by the lowest prices in 15 years, due to surpluses in many exporting countries and good crops in countries that are importers during most years. In the spring of 2002, the Rice Subcommittee held a workshop to discuss ways to reduce paddy price volatility in Egypt, and it was supposed to submit a brief to HE Dr. Youssuf Wally with policy

recommendations. Although no brief is yet available, the Rice Subcommittee seemed to favor using the Rice Marketing Cooperatives to assemble the sole crop, substituting for the private sector, in 2002/03. Although these particular policy advocacy efforts cannot be attributed to APRP, and APRP opposed both recommended measures, APRP did contribute technical, advisory and financial resources to the establishment of the ACC.

**Future Implementation, Monitoring and Applied Research Agenda**

The rice marketing policy situation remains unsettled in Egypt, following one marketing season (2000/01) of very large marketable surpluses and correspondingly low producer prices and a second season (2001/02) characterized by a short crop and exceptionally high prices. The decisions of the GOE, with input from the ACC Rice Subcommittee, about paddy buying and prices in 2002/03 will be important for the future or rice marketing in Egypt. If the GOE mandates that all paddy be assembled by rice marketing cooperatives at fixed prices, this could set market liberalization back a decade. The ACC advocacy effort requires careful monitoring. Even if the cooperatives are not given a monopsony to buy paddy, the GOE could intervene to set prices in ways that could limit the flexibility and operations of private sector rice traders.

A second important area to monitor is the role and scale of operations of the ESA rice milling companies. Will they continue to receive large loans, guaranteed by the FIHC, at harvest time so they can enter the market early and forcefully to fulfill their paddy "requirements" early? Will such requirements be administratively determined by the FIHC and its officials sitting on ESA company Boards of Directors?

Beyond monitoring of future policy decisions and their impacts, it is important to improve estimates of area cropped to paddy, as well as yield and production forecasts and estimates. The MVE Unit has worked closely with the MALR/EAS to strengthen area estimates for several crops, including rice. Rice industry participants invariably point to poor and late production estimates, which hinder planning and decisions about early season paddy buying and storage. In addition, although APRP efforts to develop a rice web site have been laudable, and the site has been transferred to the MFT, it is not clear if field data collection will continue without APRP incentives and if the database on rice prices and exports will be maintained.

**Policy Recommendations**

Based on five years of work in monitoring the rice subsector and assessing the impact of APRP policy reforms and other GOE policies on subsector performance, the authors offer the following policy prescriptions:

- Administrative controls on area planted do not work and have rarely been enforced. They need to be dropped.
- The tariff on imported rice should be lowered progressively, perhaps five percentage points a year over three to four years.
- Export subsidies should not be used, even as a one-off solution to a problem of excess supply in a particularly good crop year, if subsidies cannot be sustained in later years.

- The GOE should not change the marketing system in a way that excludes private traders. Donors should discontinue support to the ESA rice mills, even in providing training workshops. As long as the FIHC is managing the ESA mills, they are unlikely to benefit much from such training.

Liberalization of the rice subsector in Egypt was rapid and complete in the first half of the 1990s. Periodic GOE interventions in the market tend to be more de-stabilizing than helpful. In the reformed Egyptian agribusiness system, the GOE's role is best reserved for improving paddy crop area and production estimates and ensuring their timely and broad dissemination, and maintaining a level playing field for participants in the rice subsector.

# 1. INTRODUCTION

In the fall of 1997, the MVE Unit decided to undertake a series of subsector studies, using a structure, conduct, performance approach. During 1998 and the first half of 1999, four baseline studies were conducted by MVE staff and consultants. One of the key subsectors chosen was rice, an important summer field crop and a major source of foreign exchange earnings from exports. MVE began a *Rice Subsector Baseline Study* at the end of the 1997/98 marketing season and completed it midway through the 1998/99 season. An international rice trade study by a consultant and the findings of a first survey of commercial rice millers were inputs into the baseline study.

The *Rice Subsector Baseline Study* was followed by two updates in January 2000 and February 2002. These updates captured many of the details of how the Egyptian rice market and milling industry were changing over time in response to APRP benchmarks and initiatives, as well as to developments in the broader Egyptian economy and world markets. Both the baseline and the updates drew heavily from a broad range of published and unpublished data sources, synthesizing this information into an integrated picture of the evolving rice subsector in Egypt. MVE also assessed interim *Progress in Cotton and Rice Subsector Liberalization and Privatization* (November, 2000), which categorized policy benchmarks and discussed their achievement and impact. Finally, MVE has recently completed a review of privatization progress and obstacles in both subsectors (see Maziad, 2002).

This *Rice Subsector Endline Study* is a final review of key APRP policy benchmarks and implementation programs that affected the rice subsector. It also examines changes over the life of APRP in the structure, conduct and performance of the subsector, with special attention to the rice milling industry, drawing on a March-April 2002 survey of commercial rice mills. The *Endline* also offers policy recommendations and suggestions for future applied research and monitoring. The *Endline* is not meant to be an exhaustive treatment of all the topics that APRP has covered on rice market reform. The interested reader is referred to the earlier MVE reports for details about particular production and marketing years and policy measures, whether APRP-related or not, and their impacts on the rice subsector. EPIQ reports can also be consulted about APRP work on water savings in rice cultivation and improved management and coordination of the Egyptian irrigation system (see EPIQ Team, 1998, 1999, 1999).

## 2. THE RICE SUBSECTOR AT THE BEGINNING OF APRP

APCP undertook a major program of policy reform in the early 1990s that changed the rice subsector in fundamental ways. The major reforms were as follows:

- Crop area controls were removed.
- Mandatory rice deliveries were abolished.
- Paddy and rice prices were no longer fixed and allowed to vary.
- Public rice mills were no longer guaranteed paddy through compulsory deliveries to rice marketing cooperatives.
- The private sector was allowed to trade, mill and export rice.

By the beginning of APRP (1996/97), the paddy and rice trade had been liberalized, and private market shares in trading, milling, and exporting had risen sharply. The cooperatives had become secondary buyers of paddy, and the public rice mills were operating at a low percentage of their large installed capacity. Paddy prices were reportedly high in 1996/97 and exports fell 53% from their twenty-year high of 355,000 mt in 1995/96 to 166,000 mt in 1996/97, the lowest level during the APRP period. Massive investment in private, commercial rice mills was well underway and would continue at a rapid pace for another two years. Public milling companies purchased and milled only 96,300 mt of paddy in 1996/97. The Rice and Flour Milling Holding Company acted as if it were under siege, bitterly complaining about rice market imperfections and predatory pricing by wholesale traders, as well as the low quality of rice produced by private mills, many of which were unlicensed.

The rice subsector baseline study showed, among other things, the following:

- Rice area and production had increased steadily since the 1980s.
- Short-season varieties were beginning to replace long-season varieties by the mid-1990s, before the start of APRP.
- Rice consumption increased significantly between 1990/91 and 1997 (the time of IFPRI's integrated household survey), especially in Upper Egypt.
- Demand for rice was both price elastic and income elastic over most income ranges.

The key policy issues early in the APRP program, during the first three tranches, were:

- How, when, by which method, and at what cost would privatization of public rice milling companies be achieved?
- Would public millers receive special advantages, such as preferential access to credit and the ability to operate (indefinitely) in the red?
- Was there scope to lower the tariff on imported rice (30% with sales tax and port fees).
- How much area should be planted to rice, a high water-consuming crop, relative to cotton and maize, the two major competing summer field crops? The underlying issue was that of allocative efficiency in agricultural production.

Another significant thrust of APRP was the need to limit water use on rice and sugarcane, partly to conserve water for horizontal expansion schemes such as Toshka and North Sinai. An underlying concern was that of rice export competitiveness, in light of the fact that rice is an inefficient user of water. Some analysts perceived rice exports as high water content exports, suggesting the apparent ludicrousness of a desert country with scarce irrigation water exporting a heavy water-consuming crop.

A final set of concerns, which emerged by 1998, was that of which advocacy organization could best represent the rice industry. The Rice Branch, Cereals Chamber, under the aegis of the Egyptian Federation of Industries, was perceived as dominated by public millers and Holding Company officials. Given this organization's orientation, who would represent the strongly emerging private rice trade and milling industry, and where (institutionally) would it be located? How would it be funded, who would the membership be, and what would be its initial policy advocacy agenda? The consensus at APRP was that a new federation would need to be formed.

## 3. APRP POLICY REFORMS AND THEIR EXPECTED IMPACTS

The subsector baseline study, completed two years after the outset of APRP, attempted to predict how APRP might affect the performance of the subsector.

The baseline study predicted that paddy area and output would decline after 1997, a record year to that point. In 1998, both did decrease, but 1999 and 2000 ended up being new record years. The summer 2002 crop also promises to be large. While rice area has generally been higher, it has not gone up each year, having declined in 1998 and 2001. It has varied as producers have substituted rice for cotton/maize following years of relatively high prices for those crops and relatively low prices for paddy. In the rice-producing governorates (six in Delta plus Fayoum), area cultivated to paddy went from levels similar to cotton and maize area in the early 1990s to equal cotton plus maize area combined by the end of the decade.

Official MALR time-series estimates of production costs and revenues per feddan[1] show rising real net revenue to cotton cultivation in the 1990s, peaking in 1995 during the APRP period and declining steadily thereafter to 2000. Rising returns to cotton were due largely to APCP policy benchmarks that called for farmers to capture a higher proportion of the world cotton price over time. Producer prices were indeed adjusted upward during the first half of the 1990s to the point where announced producer floor prices were too high relative to the world lint cotton price by 1996/97. Real net returns to rice trended up during the 1990s and were highest in 1999. Maize returns lagged both returns to rice and cotton during the 1990s, despite the paradox of maize area being the largest area planted most years.

Note that MVE producer survey data for the 2000/01 crop production and marketing year were used to generate empirically-based findings on the gross margins per feddan to different crops and rotations (see Morsy et al., 2001). For that year, the returns were highest to cotton (2,173 LE/feddan) among the three summer field crops, with rice (1,050 LE/feddan) and maize (814 LE/feddan) trailing by a wide margin. Note that low paddy prices relative to other years may have led rice returns to be unusually low during that particular production year. The gross margin per feddan was considerably higher for rice in 1997 (1,377 LE/feddan) relative to cotton (1,556 LE/feddan).

With respect to rice exports, MVE predicted that as domestic rice consumption increased, the surplus available for export would decline. Since the price elasticity of demand for rice is negative, domestic rice consumption is partly a function of crop size (supply) and paddy prices. This goes against the conventional wisdom, whereby many Egyptian rice experts peg annual consumption at a fixed level of about 2.5 mmt.

Egyptian rice exports clearly trended upward during the 1990s, though with some variability (1996/97 and 1998/99 were down years). Exports surged in 2000/01 (to 755,000 mt), with some diversification

[1] Note that many analysts are skeptical of the validity of historical MALR estimates of crop production costs and returns. APRP/RDI worked closely with the MALR/EAS to improve collection and analysis of crop enterprise data (costs and returns) and to generate usable, empirically based estimates of returns to different crops and rotations.

of markets, but this was driven largely by export subsidies put in place midway through the season (in late January, 2001). As of early June 2002, rice exports have only reached 272,000 mt during the 2001/02 season.

MVE expected that the GOE would implement tariff reduction, leading to greater imports, by 1999/00. Tariffs actually remained unchanged, so imports were limited during all years of APRP except for the 1998/99 rice "crisis," when rice prices surged in the spring of 1999. Most analysts think that this price hike was the result of a shorter than expected crop, as yields were exceptionally low in summer 1998, and very tight domestic supplies by spring of 1999. Chinese medium-grain rice was imported in bulk but not well accepted. Much of it was re-exported. Imports have been virtually nil since 1998/99. High effective protection of 30% continues to protect domestic producers and millers from foreign competition.

The initiative to create a new Rice Federation, with broad membership to supersede the Rice Branch of the Cereals Chamber (EFI), was promising, but it ended up being stillborn, as the Federation was never legally approved. The Rice Subcommittee of ACC became the industry voice starting in late 1999, and it has been dominated by large exporters. The Rice Branch of the Cereals Chamber continues to meet monthly and represent rice millers. It appears to be no longer dominated by the public millers and Holding Company officials.

## 4. CHANGES IN THE RICE SUBSECTOR DURING APRP

This chapter summarizes changes in the structure, conduct and performance of the rice subsector over the course of APRP, from the baseline period of 1995/96 through 1997/98 to the endline period of 1999/00 through 2001/02. Table 4-1 summarizes changes over time in selected indicators of rice subsector structure and performance. Three-year averages are used to compare the baseline and endline situations for most of the indicators. In some cases, data were not available to calculate three-year averages, so shorter time-series or even one year (e.g., 1996/97 for the baseline and 2000/01 for the endline) are used. Exceptions to the three-year averages are mentioned in the table notes.

- Although paddy area cultivated increased only 3.1% from the baseline to the endline, a 10.2% expansion in rice yields was the main contributor to a 12.9% increase in total paddy output.

- The yield increase was driven largely by the large expansion in paddy area planted to high-yielding, short-season varieties. By summer 2001, 87.5% of total paddy area was cultivated to short-season varieties.

- Paddy and rice prices fluctuated considerably over the life of APRP, with paddy wholesale and rice export prices showing significant volatility. Using three-year average baseline and endline prices, into-mill wholesale paddy prices dropped 9.7% over APRP, while rice export prices declined 28%.

- Egyptian export prices are weakly correlated (0.37) with domestic wholesale paddy prices. (This is a correlation between monthly export unit values and Giza 177 paddy prices, a leading export variety. Using other varieties, correlations were slightly lower).

- Export volume expanded 52% from the baseline to endline period, while export prices dropped 28%. One-third (34.4%) of the expanded rice production (from baseline to endline) was exported, while the rest was domestically consumed.

- Although precise figures are not available, participation (and employment) in paddy assembly, rice milling, and rice distribution and export increased over the life of APRP. Most of the expansion in commercial rice milling took place early in APRP, as a lagged response to APCP rice market liberalization.

- The share of the paddy crop milled by public/ESA mills, already low at the start of APRP (8%), declined 50% to only 3.9%. Private sector milling capacity expanded rapidly from 1995 to 1998 and then slowed down in 1999-2001, as closures of commercial mills nearly offset new capacity coming on stream.

- Per capita rice consumption expanded an estimated 22% from the baseline to the endline. Rice has become increasingly important in urban consumers' diets and in Upper Egypt, where it did not become a major staple until the 1990s. Wheat (particularly bread) remains the most widely consumed grain.

- Year-end rice stocks (held mainly as paddy) are estimated to have decreased by 63% from the baseline period to the endline. This is due to increased domestic rice consumption and expanded exports.

### 4.1 Paddy Area and Production

As shown in Table 4-1, it can be seen that paddy area cultivated increased only 3.1% from the baseline to the endline. However, a 10.2% expansion in rice yields was the main contributor to a 12.9% increase in total paddy output. The yield increase was primarily the result of a large expansion in paddy area planted to high-yielding, short-season varieties from 1995 to 2001. By summer 2001, 87.5% of total paddy area was cultivated to short-season varieties (principally Gizas 177 and 178; Sakhas 101 and 102). Preliminary indications are that the proportion of paddy area planted to short-season varieties in 2002 will be even higher.

An important consequence of early rice market liberalization in 1991-94 was a steady expansion in area cultivated to paddy from the late 1980s to 1997 (see Table 1a in the Annex). Area sown declined in 1998 but returned to record levels in 1999 and 2000. Low producer prices in 2000/01 led to lower area cultivated in 2001. High producer prices in 2001/02, especially from November 2001 on, have led to large area cultivated in summer 2002.[2] Since 1997, therefore, paddy area and output have fluctuated quite a bit, albeit around a higher level than before APRP. Shifting relative prices (rice/cotton) and profitability are responsible for much of this fluctuation.

A big success for the MALR, particularly the Rice Research Institute, during the second half of the 1990s, was the successful introduction of high-yielding, short-season varieties on over 90% of paddy planted by 2001. Note that area cultivated to short-season varieties was only 5% in 1995, when Gizas 177 and 178 were introduced. Both Gizas 177/178 were introduced rapidly and effectively, followed by Sakhas 101/102 beginning in 1997. APRP played an important coordination role in working with the MALR and the MWRI to coordinate planting of short-season varieties in pilot areas along particular irrigation canals by particular groups of farmers. This led to a shorter irrigation cycle designed to save water, where water savings have been estimated at about 13%.

Steady increases in national average yields contributed to overall higher rice productivity. According to MALR figures, average yields have not declined since APCP began. Average yields achieved by farmers for the short-season varieties (3.8-4.3 mt/feddan) are reportedly higher than those for longer-season varieties (3.1-3.4 mt/feddan), which are being phased out (see Table 2a in the Annex for detailed statistics on paddy area, production and yield by variety from 1990 through 2001).

Rice traders, millers and exporters all say that they would like better and more timely information on the domestic rice market, particularly on area planted and forecast production. Most of them feel that price information from their business networks is quite good. Some state that more accurate estimates of paddy stocks would also be valuable information, though accurate data on stocks is hard to obtain and should follow improvements in information on area planted, yields,

[2] The preliminary estimate of MALR/EAS for paddy area cultivated in 2002 is 1.41 million feddans. Some industry participants think area will be 1.6-1.8 million feddans.

**Table 4-1: Summary Measures of Change in the Rice Subsector over Time**

| Market Structure or Performance Measure | Baseline Situation, 1995/96 to 1997/98 | Endline Situation, 1999/00 to 2001/02 | Change Over Time |
|---|---|---|---|
| Area Planted to Paddy | 1.454 mill. feddans | 1.499 mill. feddans | 3.1 % |
| Average Paddy Yields | 3.48 mt/fd. | 3.84 mt/fd. | 10.2 % |
| Paddy Production | 5.033 mmt | 5.681 mmt | 12.9 % |
| % Area to SSVs | 19.7 % | 87.5 % | 444 % |
| Aver. Producer Prices | 696 LE/mt | 683 LE/mt | -1.9 % |
| Wholesale Prices | 690 LE/mt | 623 LE/mt | -9.7% |
| No. Traders | 2,150 | 1900-2300 | Approx. same |
| Export Prices, FOB | 354 LE/mt | 254 LE/mt | - 28 % |
| Exports | 310,170 mt | 472,783 mt | 52 % |
| No. Commercial Mills | 225-250 | 275-300 | 10-20 % |
| Total Milling Capacity | 7.0 mmt | > 7.0 mmt | Approx. same |
| % Capacity Private | 79 % | > 79 % | Approx. same |
| No. Exporters | 76 | 115 | 51 % |
| % Crop Milled by Public/ESA Mills | 7.9 % | 3.9 % | - 50 % |
| Export Concentration (top five exporters) | 52.6 % | 49.3 % | - 7 % |
| Public Export Share | 13.6 % | 17.9 % | 32 % |
| Export Revenues | $105.5 | $110.3 | 4.5 % |
| Per Capita Consumption | 35.4 kg | 43.3 kg | 22.3 % |
| Year-End Stocks (milled rice equivalent terms) | 1.028 mmt | 382,000 mt | - 62.8 % |

Notes: 1) Average producer prices are reported by MALR/EAS. 2001 prices were not available, so a three-year average was taken for 1998-2000.

2) Wholesale prices are annual averages of MVE's own series on into-mill wholesale prices for 1997/98 and 1998/99 (baseline) and 1999/00 through 2001/02 (endline). These data were collected by MVE from industry sources.

3) Based on a March 2002 survey of rice traders, MVE found that sample traders bought an average of 2,570 mt each in 2000/01 and 1,650 mt in 2001/02 (where the marketing season was not yet quite complete). After estimating marketed surplus of paddy in both years from official MALR production figures and MVE producer survey data about crop disposal, MVE calculates that there 1,900-2,300 paddy buyers in Egypt in 2000/01 and 2001/02.

4) Export prices are average unit values over 1996/97 and 1997/98 for the baseline, and 1999/00 through 2001/02 (only through March 2002) for the endline. CAPMAS is the source.

5) Exports for 2001/02 are forecast to reach 325,000 mt. 272,300 mt had been exported as of early June 2002.

6) Export concentration included five private exporters in 1996/97 and one public exporter (Rice Marketing Company) and four private exporters in 2000/01.

7) The public export share increased, due to the large exports of the Rice Marketing Company in 2000/01. The highest public share was 21.8% in 1997/98.

8) Both per capita consumption estimates and estimates of year-end rice stocks are taken from Table 4

in the Annex, “Paddy and Rice Supply and Use Estimates, 1990/91-2001/02.

and prices. MVE worked with MALR/EAS to improve major field crop area estimates (including paddy), which is the top priority in the short run.

### 4.2 Paddy Assembly and Pricing

As shown in Table 4-1, there are a number of indicators related to paddy assembly and pricing. One finding is that the number of paddy buyers by the endline period certainly equaled and probably exceeded the number of paddy buyers estimated during the baseline.[1] Paddy buyers in 2000/01 and 2001/02 were handling greater volumes than traders in 1997/98, as overall marketed surplus expanded. Since it appears that average volume handled per paddy buyer in 1997/98 was probably underestimated, the number of paddy traders estimated during the baseline was perhaps exaggerated. Hence, MVE is reasonably confident that there were more paddy buyers by endline period.

Another finding is that paddy prices fluctuated considerably during APRP. MALR official data on annual average producer prices did not show a lot of variability (see Table 5 in the Annex), as producer prices dropped a slight 1.9% between the baseline and endline periods. In contrast, MVE's own into-mill wholesale paddy price series did show considerable variability (see Table 6 in the Annex). These prices decreased nearly 10% between the baseline and endline periods, largely due to greater paddy supply and marketed surpluses. Significant swings in paddy (and rice) prices led to a cobweb type pattern of decreased area planted (1998, 2001) in response to prior year low prices and significantly increased area planted (1999, 2000, 2002) in response to high prices in previous years.

The rapid and decisive liberalization of the rice trade in the early 1990s led to broad private sector entry into paddy buying, which required minimal capital and skills. While there are often allegations of paddy hoarding by large-volume wholesale traders and some accusations of unfairly low pricing by small assemblers in some isolated rural zones, most of the evidence points to a competitive domestic market for paddy and rice. Despite this, many millers, exporters, and Food Industries Holding Company and GOE officials believe that paddy traders contrive artificial scarcities through hoarding, which is responsible, they contend, for the run-up in paddy and rice prices in Egypt from October 2001 to the spring of 2002. In response to this perception, the Rice Subcommittee of the ACC convened a one-day workshop on 3 April 2002, at which industry representatives discussed ways to limit paddy price volatility.

Although no formal proposal has emerged from the Rice Subcommittee, millers and exporters seemed

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[1] In the baseline study, MVE estimated that there were about 2,150 paddy buyers, assuming that each buyer purchased 250 mt on average and that total marketed surplus in 1997/98 was 2,166,493 mt (or 40% of the crop). Surveys near the end of the project raised questions about the validity of those assumptions. First, the producer survey showed that marketed surplus was 81.3% of the 2000/01 rice crop. This was higher than expected. Hence, marketed surplus for the 2000/01 crop is calculated to be or 4.878 mmt. Second, a survey of 31 paddy traders showed the average quantity purchased was 2,572 mt per trader. Dividing marketed surplus of 4.878 mmt by 2,572 mt per trader yields an estimate of 1,897 paddy buyers. Following a similar logic for 2001/02 yields an estimate of 2,323 paddy buyers. MVE's estimate of the number of paddy traders (8,666) was probably too high for 1997/98, as the quantity of paddy traded per buyer was assumed to be far lower than discovered empirically through the MVE trader survey of spring 2002. In the baseline, paddy trading was assumed to be a quarter-time job, leading to an estimated 2,166 full-time equivalent jobs.

to favor centralizing paddy purchasing in one organization, most likely the Rice Marketing Cooperatives, whose role in paddy assembly is far smaller than it used to be during the late 1980s and early 1990s. The industry consensus is that one organization would offer farmers a fair, fixed price that would be sufficient incentive for producers to continue growing rice, but that would allow Egypt to remain competitive in export markets. While paddy price volatility has posed problems for both farmers and the industry during the past four years, it is not clear that channeling all paddy purchases through cooperatives would solve the problem. MVE's evidence from field interviews and surveys is that paddy traders operate on low overheads with minimal capital in a competitive manner. Given widespread participation in paddy trading and the fact that rice production is relatively geographically concentrated,[2] the rice trade is competitive and excessive price swings are more likely to result from changes in fundamentals (particularly, inter-annual supply shifts), destabilizing GOE announcements and interventions, and trade/industry responses to limited, inaccurate information.

An important area of ongoing policy concern and uncertainty is how the GOE will respond to ACC proposals to limit paddy price fluctuations. MVE believes that investments in improving generation, processing and timely dissemination of production and marketing information (and possibly periodic surveys on trader and miller stocks in a second generation) would do more to reduce market volatility than any price-fixing scheme. Furthermore, forcing all farmer paddy sales through rice cooperatives would deprive producers of choice of market outlets. In many ways, it would be a return to the pre-liberalization crop assembly system. Although the rice marketing cooperatives would clearly welcome an enhanced role, it is not clear that they could assemble the paddy crop more efficiently and at lower cost than private traders. The cooperatives should be allowed to operate in a competitive paddy assembly system, receiving no particular advantages. The more viable market outlets for paddy, the better off producers will be.

The domestic paddy trade appears to be as open and competitive as it was at the beginning of APRP. There are no known barriers to entry. The numbers of buyers (and the workers they employ) have probably increased since 1996/97. Farmers cite that the market for paddy is competitive and that there are numerous buyers (see Morsy et al., 2002). Nearly one-half (46%) of the sample farmers in the producer survey noted that there were 4-6 paddy buyers in their village, while 41% observed that there were 1-3 paddy buyers. Sixty-three percent of the sample farmers reported that freedom to sell paddy to whichever buyer at whatever price began under APCP; 35% said this freedom was established under APRP. Fully ninety-one percent of sample farmers noted that local traders were the best market outlet, with only 2% stating that cooperatives were and 0.5% citing that PBDAC was. Farmers responded to market opportunities by selling a higher proportion of their paddy crop in 2001 (66%) than in 1997 (53%). Of the rice growers among sample farmers, 89% stated that they began to grow short-season varieties during APRP, while only 11% did so under APCP.

Large miller and exporter allegations of paddy traders' buying up all the paddy at harvest, hoarding it, and contriving scarcities to propel prices upward do not seem to be empirically based, although it may be that rumors and press announcements about GOE intentions to subsidize rice exports led to

[2] Most rice is grown in six Delta governorates in Egypt. The Delta is a circumscribed area relative to all of Egypt and the very large (rainfed) producing areas over which staple crops are marketed in many developing countries.

accelerated paddy buying in the fall of 2001, as traders, millers and exporters realized that the paddy crop was short and they reacted to cover their requirements as early as possible. An interesting finding from the producer survey is that farmers who grew paddy in 2000 held some stocks (14.5% of paddy output) beyond the 2000/01 marketing season (see Morsy et al., 2002). This may be because those farmers were disappointed with the low producer prices of 2000/01 and anticipated a smaller crop in 2001 and hence higher prices in 2001/02. Another interesting finding was that 66.4% of the paddy crop was sold, of which 67% was sold to private traders and only 13% was sold to rice mills. Only 18.7% of the summer 2000 paddy crop had been auto-consumed by fall 2001. The high degree of commercialization and the rather low proportion of consumption are surprising findings.

### 4.3 Rice Milling Industry

Major changes in the rice milling industry were underway during the baseline period, as private sector investment increased at a spectacular rate from 1995-1998 in response to the early and nearly complete liberalization of rice marketing in Egypt under APCP. The number of commercial mills continued to increase from the baseline to the endline period, although the major part of the investments were made before and during the baseline period. MVE estimates (see Table 4-1) that the number of private commercial rice mills, defined as mills processing at least 20 mt of paddy per day, increased 10-20% over APRP. At the same time, some of the weaker, typically small to medium size commercial mills actually had closed down by 2001/02. By 1999/00, it appears as if commercial mill closures began to nearly offset new mill openings.

While private commercial milling capacity continued to increase under APRP, public/ESA capacity remained the same, and the actual market share of these mills declined from 8% to 4%. The ESA mills now operate at no more than 20% of their installed capacity and at far lower levels than during the 1980s and early 1990s (see Table 15 in the Annex).

A census early in APRP by the then Rice and Flour Milling Holding Company and the MTS revealed that there were some 4,700 rice mills in rural Egypt. This census seems to have mixed commercial-scale mills with smaller village mills that largely serve rural producers. MVE estimated (see *Rice Subsector Baseline Study,* 1999) that there were some 5,500 rural rice mills, in Egypt that operated on a small scale in 1996/97. There has been no subsequent census of village rice mills and MVE does not know whether the number of single-pass village mills, processing under 10 mt/day, has expanded, contracted or stayed the same. There is some evidence from a survey of rice millers, conducted in March-April 2002, that the number has expanded slightly, though it is not clear at what levels of capacity these mills operate. It is possible that the expansion in private commercial mills has reduced the throughput of smaller village mills, particularly as the overall commercialized proportion and volume of the paddy crop has expanded in recent years. This remains a hypothesis, however, for empirical testing.

Following liberalization of the rice trade in 1992/93, with a lag of several years, agro-entrepreneurs unleashed a torrent of investment in rice mills, ranging from large commercial mills, capable of processing 50 mt/day of paddy or more, to *farrakha* that can mill 5-10 mt/day. Investors waited 2-3 years to see if rice market liberalization would stick, and when they were convinced it would, they moved quickly and aggressively to expand private sector milling capacity. The fact that liberalization led to a tumbling in the public milling industry's market share contributed to investors' perception that

rice milling was going to be a profitable industry in which to invest. The period 1995-1998 witnessed heavy investment in private mills, while the public mills continued to struggle. The availability of cheap Chinese milling equipment reduced the start-up costs of many millers, although this equipment is reported to have a far shorter life than higher-end, more costly milling equipment imported from Japan (Sataki) and Switzerland (Buhler). Overall investment in commercial rice mills alone, capable of processing at least 10 mt/day of paddy, was at least LE 13.6 million from 1995 to 1998, assuming an average investment of at least LE 100,000 per mill and 136 new commercial mills established during that four-year period.

Private investment continued after 1998, though its pace slowed, and there is evidence that mill closures offset or nearly offset new investment. It also appears that small, single-pass, village-level *mawani* were eclipsed by omnipresent *farrakha*, which could operate on a larger scale (milling 5-20 mt/day of paddy) and achieve scale economies, while serving producers, small traders, and larger millers/traders. MVE surveys of commercial rice mills showed that most millers thought that too much investment had already taken place by 1998/99, as millers reported that certain paddy producing zones were saturated with large and smaller mills. By early 2002, this view was even more strongly held. Although millers' views on this issue might be biased, their perception of industry over-capacity is corroborated by empirical estimates of national milling capacity.[3]

Commercial mills and *farrakha* operate efficiently and behave competitively, competing for customers[4] and paddy in their zones of operation. Surveyed commercial mills in March-April 2002 almost universally complained of over-investment in *farrakha* in their areas and strong competition for limited paddy supplies, particularly in 2001/02, when the crop was smaller and marketed surplus was tighter. The fact that 27% of the mills surveyed in late 1998 were not operating in 2002 is evidence that private millers face a very tough and competitive market environment. When operators of closed down mills were asked why they weren't operating in 2001/02, most cited tight paddy supplies and high paddy prices and a lack of liquidity. Note that some of the non-operating mills in 2001/02 may reopen in 2002/03 if the paddy crop is larger and marketed supplies are more plentiful. This will depend in part on how the ESA rice mills behave this coming market year.

Commercial mills' profitability, taking investment costs into account, is largely a function of capacity utilization. Larger mills that sit idle, or operate limited hours for a limited number of months, or that face too many competitors in their production zones face problems.[5] In many cases, larger mills benefit from better liquidity and access to bank loans, so they can afford to keep their mills running at higher rates of capacity utilization. It is interesting to note that after three seasons, milling rates and millers' own estimated milling costs have changed little. This is partly due to the fact that diesel and electricity rates

[3] In the *Rice Subsector Baseline Study*, MVE estimated that national milling capacity could handle 7.65 mmt of paddy per year operating at reasonably high levels of capacity utilization (221 days per year for ESA mills; 200 days/yr. for commercial mills; 120 days/yr. for small village mills). The largest paddy crop on record was 6.0 mmt in summer 2000.

[4] Custom-milling of paddy for farmers and traders is a lower proportion of total milling done by commercial mills than it is for small village mills, which do little other than custom mill. Sample commercial mills did custom-milling on a low of 12.0% of the paddy they processed in 2000/01 and a high of 27.5% in 1999/00.

[5] Note, however, that of the 16 survey mills that were not operating in 2001/02, only two had capacity over 35 mt/day of paddy, and the mean capacity was 31.5 mt/day.

have changed little in rural areas and secondary towns. It is also due to very limited wage inflation. Average reported salaries changed little over the 1999/00 to 2001/02 period.[6] Years of short paddy supplies, such as 2001/02, and more limited hours of operation likely dampen any pressures to increase wages.

As the private milling industry matures, there is increasing evidence of specialization in milling tasks along the lines of competitive advantage. *Farrakha* and small commercial mills concentrate more on first-stage milling operations, particularly dehulling. Large commercial mills and some exporters focus on cleaning, polishing, sorting and packaging of rice for export or sale in upscale domestic outlets, such as supermarkets, mini-markets or eating establishments. Whereas most rice exports were shipped in 25 kg polyurethane sacks five years ago, there are now more exports of rice shipped in cartons containing retail packs of one and five kilograms. Brand or trade names are now more common. Some rice mills produce brown rice or cargo, which is shipped to certain foreign markets, such as Romania, in order to get around tariff walls.[7] Some of the larger exporters have invested in sorting equipment that allows them to meet importer specifications precisely with respect to the percentage of brokens, impurities, discolored and immature grains. These exporters tend to work with 10-20 smaller mills, who do the first-stage processing at lower cost in rural areas. Shipping dehulled rice to export staging locations, rather than paddy, also economizes on transport costs.

The Egyptian experience in rice milling investment during the 1990s is in some ways a success story and in some ways a cautionary tale of the pitfalls of uneven agricultural market liberalization. It is a success in that it showed that private entrepreneurs were willing and able to make significant agribusiness investments once the GOE liberalized an important commodity market, let prices be market-determined, and left public enterprises (milling companies) largely on their own to survive. At the same time, there is widespread consensus that the second half of the 1990s witnessed excessive investment in rice milling, partly due to a bandwagon effect, but also to the fact that agro-industrial investment opportunities were limited in Egypt to a handful of subsectors (rice, horticulture) as GOE intervention and control of trading/processing companies were too heavy-handed in other leading subsectors (cotton, wheat, sugarcane, oilseeds). The Egyptian experience in rice milling is also a cautionary tale about privatizing public sector companies, which is discussed in detail in the next section.

The rapid and decisive liberalization of the rice market in Egypt contrasts starkly with the gradual, halting liberalization of cotton marketing. It is no surprise that prospective agribusiness investors responded enthusiastically to the opportunities in the rice subsector, while they were hesitant to commit resources to a cotton subsector characterized to this day by administrative pricing, quotas and administrative allocation of market shares, and GOE control over what cotton varieties farmers can grow in which areas. The narrow channeling of investment opportunities in the Egyptian agribusiness system led to excessive investment in rice milling, which has led to some mill closures and represents,

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[6] Average wages remained stable over the last 3 seasons (1999/2000 to 2001/02). During the 1999/2000 season , the average monthly wa
and in 2001/02, it marginally increased to LE 324. The highest average wages were found in Damietta, were over the past three season, r
LE 402 from 1999/2000 to 2001/02. Similar wage levels were also recorded in Dakahlia, while the lowest average wages were found in K
277, 287, and 303 per month over the same 3 seasons.

[7] Romania has a tariff on white rice imports of 35%, whereas the tariff on cargo is reportedly 20%. This has led two companies to put up their own rice (polishing) mills in Bucharest, which finish the processing of imported cargo.

from a sectoral perspective, a misallocation of scarce resources.[8] In addition, the fact that rice producers and millers in Egypt are protected by a 30% effective tariff rate on rice imports further enhanced the financial profitability of paddy production and milling.

### 4.4 The ESA Privatization Experience and Lessons Learned

As argued in other MVE rice reports, the GOE and the Rice and Flour Mills Holding Company acted too slowly to privatize public sector rice milling companies. Several companies were offered for privatization in 1997, and the investor response was at best lukewarm. Bids were low, and no sales took place. By mid-1998, the MPE had committed to ESA privatizations of public milling companies. Over the next year, all but one of the eight public companies had been privatized, with employee stakeholder associations "owning" 90% of the shares, the Holding Company 9.9%, and private investors (mill managers) 0.1%. ESA ownership was, however, nominal and not real. The ESAs are supposed to buy the milling companies from the HC over a 12-15 year period, but only two companies had made any installment payments by mid-2002. The Holding Company, the Food Industries Holding Company as of December 1999, controls a majority of the seats on the ESA mills' Boards of Directors, retains the authority to appoint company managers (few of whom have changed since privatization), and convenes weekly meetings in Cairo of senior ESA mill managers to discuss and make decisions about paddy procurement, pricing, milling operations, and sales, particularly exports. The FIHC continues to negotiate export deals with foreign governments (particularly Libya and Syria) on behalf of the ESA mills. It also guarantees and secures loans from public sector banks for these mills, most of which would be unable to obtain credit to cover working capital requirements without the FIHC guarantee as to their credit-worthiness.

As of mid-2002, the rice milling privatization experience continues to be problematic. During the past three years, the ESA mills have operated at no more than 20% of their originally installed capacity. Many GOE and FIHC officials, as well as industry analysts, feel that it is important to keep this significant installed capacity in productive use. They point out that the ESA mills have generally better milling equipment (Sataki and Buhler; never Chinese) that is better suited to producing a higher-quality milled rice output. Broken rates, in particular, are much lower, so the output of public mills is considered more readily exportable than the output of many private Chinese-equipped mills, which produce an inferior, rougher output with higher brokens. There is some truth in this contention, though it reflects an engineering mindset (high quality for quality's sake) rather than an economic perspective.[9] In recognition of the inferior output of some Chinese-equipped rice mills, the private milling industry has made investments in expensive sorting equipment, which removes brokens and discolored, immature, or chalky grains. Most of this "sortex"[10] equipment is found at larger commercial mills and with

[8] This same logic can be applied to the Egyptian tourist and construction industries, relatively free of GOE intervention, leading to booms in the second half of the 1990s. Many would argue, however, that there has been excessive, unprofitable investment in both industries and that shake-outs are inevitable with lingering excess capacity.

[9] In the early 1990s (1990/91 through 1994/95), nearly two-thirds (65.6%) of the milled rice output of the public sector mills was exported. During the past two completed marketing seasons, the ESA mills exported over half of their milled rice output.

[10] *Sortex* is the English brand name for the most widely used sorting equipment. Japanese sorting machinery is also available on the international market, at lower prices than the English sortex.

exporters, who do the final "polishing" of roughly milled rice ( purchased from smaller mills that use Chinese equipment), sorting and packing.

Many Egyptian officials and analysts also feel that the large sunk cost in public/ESA rice mills cannot afford to be lost or abandoned, even though most of the investments in rice mills and equipment date from the 1980s or earlier, and that the ESA mills need to be kept in operation. Some analysts argue that the real issue underlying the reluctance to close down public mills is the short-run negative employment impact of laying off public sector workers. While the employment implications of privatization decisions are always an important consideration, it is noteworthy to point out that employment in public/ESA rice mills was less than half (45.5%) of the estimated 10,830 workers in 1996/97 by 2000/01. This contrasts markedly with the 129,395 workers in the public textile companies reported for 2000/01 (see MVE *Monitoring Report*, 2002), where employment is much higher and a prime consideration.

The public/ESA mills still represent 21% of national milling capacity. The counter-arguments to these points are that sunk costs are sunk costs, and that surely this argument should not apply to investments made 15 to 30 years ago. Although the ESA rice milling equipment may have been under-utilized during the APRP period, it was used over a long enough time horizon and amortization period to invalidate the argument that the large, sunk investment needs to be maintained. Second, the ESA rice mills could shut down overnight, and private milling industry capacity would be sufficiently large to mill the entire paddy crop at recent output levels (of 6 mmt or less).[11] Some observers argue that significant ESA rice mill purchases of paddy during several recent years, particularly early in the season when guaranteed credit has been obtained, have pushed paddy prices to higher levels than would have prevailed otherwise, crowding out (in both credit and raw material markets) some private millers. Following this logic, private mill profitability would likely be higher without ESA mills competing for paddy.

While the point of this discussion is not to denigrate the ESA privatization mechanism or ESA mills, the ESA rice mill privatization experience raises several serious issues that need to be considered by policy-makers:

- Should the FIHC be allowed to manage and control the ESA mills over the medium term?
- Should the FIHC secure credit for the ESA mills, as well as export market outlets?

- Will ESA mills become de facto instruments of GOE paddy price policy, by virtue of the fact that they are able to obtain large loans early in the marketing season and enter paddy markets aggressively and with strong financing, buying at suggested GOE prices?
- Should ESA mills receive operating subsidies and indirect support to continue operating at moderate levels of capacity utilization when some private domestic mills face financial difficulties and may have closed or have actually closed? In other words, should the GOE and FIHC maintain the full, existing ESA rice milling capacity in place when there is overall excess industry capacity and the private sector has made sufficient investments to cover the entire rice crop?

[11] In 1998/99, MVE estimated private sector milling capacity at slightly over 6 mmt (6.014 mmt) of paddy per year. Since then private sector capacity has expanded somewhat, perhaps 10%.

MVE's answers to all these questions is "no." In a liberalized market environment, privatized companies should not receive special advantages or subsidies that allow them to operate unprofitably and at low levels of capacity utilization. The fact that the FIHC manages the ESA rice milling companies closely, guarantees them access to credit, and negotiates export deals on their behalf are evidence that privatization has been more nominal than real.

### 4.5 Export Performance and Subsidies

Rice exports from Egypt expanded significantly from the late 1980s through the early 2000s, although the record export level of 755,400 mt achieved in 2000/01 will not be repeated in 2001/02 or anytime soon. Exports as of early June 2002 were only 272,300 mt and will probably not exceed 325,000 mt by the end of the 2001/02 season. It appears as if the large exports of 2000/01 were driven in large part by export subsidies, which allowed Egypt to re-capture declining market share in Eastern Europe and some Mediterranean markets (such as Turkey), as well as to enter new markets in Sub-Saharan Africa (particularly COMESA countries, where duties are partially or fully waived). Entry into low-income and highly price-sensitive African markets proved to be a one-off experience, however, as exports were only 18,700 mt as of early June 2002, as opposed to 141,200 mt in all of 2000/01.

Nevertheless, it is important to note that Egyptian rice exports expanded significantly (by 52%) between the baseline and endline periods. Annual export revenues increased only modestly, largely because world rice prices (and Egyptian rice export prices) dropped to cyclically very low levels during the late 1990s through the early 2000s. Increased paddy output and supply of commercialized rice led to greater entry of traders into the rice export business; the number of exporters increased by an estimated 51% (see Table 4-1). This resulted in a modest decline in concentration in rice exporting, though the top five firms still captured nearly 50% of total exports during the endline period. The share of the public sector, including the FIHC, the Rice Marketing Company, and several public/ESA rice mills, fluctuated from year to year during APRP (see Table 10 in the Annex); it surprisingly increased somewhat between the baseline and endline periods. This result was due to the aggressive export sales of the Rice Marketing Company and the FIHC in recent years.

The export boom following the implementation of rice export subsidies in January 2001 led many traders, millers and exporters to anticipate a second year of subsidies in 2001/02. There was considerable industry speculation and talk in the Egyptian press of export subsidy levels for 2001/02. The GOE was not financially in a good position to offer rice export subsidies a second year; estimated subsidy payments to exporters were about $20 million in 2000/01. Some analysts argue that all this attention heightened expectations and led many traders and millers to buy as much paddy as they could afford to buy in the fall of 2001, contributing in a major way to the rapid run-up in paddy prices. There is probably some truth in this contention, although widespread realization that the paddy crop was much smaller in 2001 than it had been during the two previous seasons was a fundamental underlying factor leading to the accelerated rise of paddy prices.

### 4.6 The Success of MALR's Rice Breeding Program and Introduction of SSVs

Strong rice breeding programs in Egypt have enabled Egypt to introduce blast-resistant, high-yielding

and short-season varieties that are well suited to Egypt's growing conditions and to domestic and regional consumers' tastes. Average paddy yields increased 10.2% between the baseline and endline periods of APRP, largely on the strength of the new short-season varieties. These averages across all varieties actually understate the yield differences between long-season and short-season varieties, as the annual averages are an average across all types of varieties. In 2001, yields of short-season varieties (3.98 mt/feddan) were 20.3% higher than yields of long-season varieties (3.31 mt/feddan), up from 5.4% higher in 1998 and 11.3% in 1999. Over the three-year endline period (1999 to 2001), short-season varieties yielded 15.6% more than long-season varieties (3.92 mt/fd. vs. 3.39 mt/fd.).

As presented in the MVE Unit's final *Monitoring Report* (2002), the paddy yield increases over the life of APRP resulted in higher estimated production per unit of water. Until 2001, these calculations assumed that all the paddy grown in Egypt was long-season. By accounting for the fact that the higher-yielding, short-season varieties use less water than the long-season varieties that dominated rice cultivation at the beginning of APRP, rice output per unit of water is estimated to be even higher.

Giza 171 was the leading paddy variety in Egypt during the 1990s, planted on a larger area than any other variety through 1999. Its yield was highest at 3.58 mt/fd. in 1998, but it fell to 3.27 mt/fd. by 2001. MALR officials and breeders attribute this decline to rice blast, which led MALR to cancel Giza 171 as an official variety in 1998. Giza 171 area decreased steadily from 1997, when it was 751,000 feddans, to 117,100 feddans in 2001, a decline of 84.4%. This decline concerned Egyptian rice exporters, who were concerned that there would be no superior short-grain varieties to replace Giza 171. This concern has been allayed by the excellent performance and millability of Giza 177 and Sakha 101, which are used to produce high-grade rice for export. Millers and exporters continue to complain about Giza 178, stating that it is a too thin and too dark variety subject to breakage in milling. While Giza 178 was milled and exported in large volume as natural grades 3 to 5 in 2000/01, particularly to less discriminating COMESA markets, it has been primarily reserved for domestic consumption. Some millers have also complained about Sakha 102, whose production and milling yields are lower than Sakha 101. IFPRI reports that the Rice Research Institute has been developing hybrid, short-season varieties that will be higher-yielding and introduced in several years (IFPRI, 2002).

### 4.7 Returns to Paddy Producers

The fact that paddy continues to be planted on large areas in the Delta and Fayoum suggests that rice cultivation (or rice/berseem, rice/wheat rotations) is profitable. MVE found in its producer survey that the gross margin per feddan of rice was a rather low LE 1,050/feddan in 2000/01, higher than maize at LE 814/fd. but well below cotton at LE 2,173/fd. MVE producer survey findings (see Morsy et al., 2002) show that cotton/berseem rotations were more profitable (in 2000/01) than any rotations involving paddy, which may have been a function of low paddy prices paid to farmers following the very large summer 2000 crop (reported as an average of LE 483/mt). Using higher 1999/00 or 2001/02 prices paid to farmers could substantially change the ranking of different crops and rotations. Sensitivity analysis of gross margins to output prices would be a useful exercise that would show how variable returns can be.

Part of the attractiveness of rice for farm households is that the overall labor requirements per feddan are much lower than for cotton (29.0 person days of labor are required per feddan of rice, as opposed to 70.3 person days for cotton cultivation). Hired labor needs and payments are greater per feddan for cotton, requiring greater cash outlays at a time when rural households need cash for other purposes (school expenses, marriages, etc.).[12] Other than the time-consuming rice transplanting operation, done mainly by hired labor in June, rice cultivation is easier than cotton cultivation, which presents special challenges at harvest time (when many children are back in school).

Related to the labor availability issue, most of the commercialized paddy crop (60.5% of sample farm rice output) comes from large farms of 5 feddans or more, which represented 32.9% of the producer survey sample. Generally, as farm size increased, a higher proportion of farmers (in different farm size categories) grew rice. While less than 25% of the farms under five feddans grew paddy in summer 2000, 29% of the farms of 5-10 feddans cultivated rice, and 48.1% of farms greater than 10 feddans cultivate rice. In contrast, about the same percentage of farmers in each farm size category grew cotton (21.2% for farms >10 feddans; 26.8% for farms of 5-10 feddans; < 25% of farms under 5 feddans). Large commercial rice growers wish to minimize their cash outlays for hired labor, as well as the management headaches. Paddy can be mechanically harvested, and most larger rice producers use mechanical harvesting.

### 4.8 Concluding Observations

In the final analysis, the rice subsector has responded well to the opportunities and challenges following market liberalization during the early to mid 1990s. Too slow cotton subsector liberalization tilted area planted, investments in processing, and trading opportunities toward the rice subsector. From an agribusiness system perspective, too many resources have been allocated to the rice subsector. Completion of the cotton market reform agenda, and more vigorous and realistic efforts to privatize cotton ginning, trading and spinning companies could redress this imbalance. This would lead indirectly to lower area planted to paddy, though somewhat higher paddy prices, probably net disinvestment in rice milling, and lower rice exports. At the same time, water use on Delta summer crops would decline.

[12] According to MVE's 2001 producer survey, nine times as much labor is hired in cotton cultivation (62.6 days per feddan) as compared to own farm labor (7.7 days per feddan). In rice cultivation, total labor required per feddan is only 29.0 days/feddan, of which 19.6 days/fd. represent hired labor.

# 5. SIGNIFICANT APRP ACHIEVEMENTS

This section will summarize and review important APRP achievements in the rice subsector. It will not be an exhaustive discussion of policy benchmarks. The interested reader is referred to an earlier MVE Impact Assessment study (Holtzman, 2000, Impact Assessment Report No. 14) for a more detailed classification and treatment of benchmarks.

Benchmarks most directly related to the rice subsector fell into four categories:

- Market and trade liberalization
- Privatization of public rice mills
- Conserving water in rice cultivation
- Policy advocacy

APRP had, and will continue to have, an important impact on the rice subsector. First, APRP, particularly through the efforts of GreenCom, created awareness of (the coming) water scarcity. KAP (knowledge, attitudes, practices) surveys in 1998 and 2001 (Zanaty and Associates, 2002) showed that more producers are now aware of which crops consume the most water and why it is important to conserve water in irrigated agriculture. APRP technical assistance and public awareness raising efforts also convinced all parties, including producers, extension agents, irrigation system managers, and marketing system participants, of the need to better balance water supply and demand. At a more operational level, APRP strengthened the capacity of MALR and MWRI to manage and coordinate water distribution, particularly in cultivation of short-season paddy varieties, but more generally in collecting information about farmers' planting intentions and actual cropping pattern that was used to fine-tune water releases from the Aswan High Dam. In addition to strengthening water resource management, APRP support to MFT and to the private sector in creating the ACC led to a strong Rice Subcommittee. APRP was also able to assist MPE in privatizing public sector rice milling companies through ESAs. In addition, APRP strengthened the management of ESA rice mills, and there is some evidence that two milling companies (Sharkia; Damietta and Belkas) performed nearly as well in 2000/01 as they did in 1998/99.

## 5.1 Market and Trade Liberalization

In the first tranche of APRP, there were two benchmarks concerned with completing liberalization of the domestic rice market. In tranches II and III, APRP had two successive benchmarks calling for reduction of the tariff on imported rice. The tranche I market reform benchmarks have largely been accomplished. The rice market has been liberalized, and there is a thriving private sector presence in paddy trading, rice milling, and rice distribution. As noted above, there are periodic GOE announcements about export intentions and paddy prices that can destabilize the rice market at the margin. Private sector market shares are so large at this point that the GOE is not likely to undo market liberalization, which was largely completed under APCP. It can, however, make market conditions difficult for private participants and undermine their profitability in particular years through ill-timed interventions in the market (particularly in announcing paddy floor prices) and announcements (about anticipated export levels and subsidies).

Rice tariff reduction has not been achieved under APRP. This is an issue that ultimately requires concurrence of the Ministry of Finance, not keen, during the current fiscal crisis, to see potential sources of revenue removed. Note, however, that the miniscule level of rice imports during most years (generally around 1,000 mt of high-priced specialty rices) does not make, through tariff revenue, a significant contribution to the GOE budget. Nevertheless, the MALR alone does not have the authority or clout to have the tariff on imported rice lowered. The MFT, MSHT, Ministry of Industry, and Ministry of Finance ultimately must concur. While rice tariff reduction proved impossible to achieve under the APRP umbrella, the issue remains an important one. A high tariff on imported rice, effectively 30%, protects domestic rice producers and millers. It contributes to higher than socially justified financial profitability of a heavy water-consuming crop. Farmers are able to plant a larger area to paddy than possible if rice could be imported, with no or low duties, for sale to poor urban and Upper Egyptian consumers. A larger crop translates into more paddy to be milled, which has contributed to excessive investment in rice milling. Some investors in private rice mills might have been deterred from making investments if cheaper imported rice were available on the domestic market.

Some MALR officials argue that Egyptian consumers will not buy foreign rice, unless it is high-quality, medium- or short-grain rice. Foreign sources of this shorter-grain rice, deemed suitable for *mahshi* style cuisine, are the U.S., Australia, Italy, and China, which are all more expensive than Egyptian rice except for Chinese medium-grain. Significant tonnage of Chinese rice was imported into Egypt during the summer 1999 rice crisis, when prices were unusually high following a disappointing 1998 harvest. The importing firms were not leading rice traders, and the Chinese rice was reported to be old stock that was not suitable for Egyptian consumption. A good part of this stock was later exported to Sudan, a less discriminating, more price-sensitive market for rice. The 1999 experience of importing Chinese rice was probably not a fair test of how Egyptian consumers would respond to a somewhat different imported rice. Poor urban consumers will probably buy the cheapest source of calories, even if foreign rice is not ideal for traditional Egyptian and Middle Eastern cuisine.

The scope for reducing the tariff on imported rice is unknown. It appears as if there is significant political inertia blocking any future change. GOE officials are also apprehensive about how tariff reduction or elimination would affect domestic production levels and the financial health of the rice milling industry. Many GOE officials, particularly those in MALR and MWRI, would like to see less area cultivated to rice in Egypt, which would lead to significant water savings (for other crops and horizontal expansion schemes in Toshka and North Sinai). Others, particularly FIHC, MPE and Ministry of Industry officials, wish to see the ESA rice mills survive, and they perceive that foreign competition could only reduce the probability that the ESA mills can eventually pay off their purchase loans and achieve financial viability. There is also an underlying realization among many public officials that there has been excessive investment in private rice mills, and that either higher domestic prices or cheap foreign imports could only hurt those mills, leading to more closures. USAID and other donors should contemplate rice tariff reduction as part of a broader trade policy reform program; MVE recommends against making it the centerpiece of any future agricultural policy reform program.

## 5.2 Privatization of Public Rice Mills

After initial failure (in Tranche I), APRP was able to achieve the rice milling privatization benchmarks when the MPE privatized the public mills using the ESA mechanism. The legal transfer of title did not automatically translate into an economically viable and well-functioning set of ESA milling companies. Four years post-privatization, two or three of the ESA milling companies could probably survive without FIHC support and leadership. The other five or six continue to operate unprofitably (see Maziad, 2002) and would likely collapse without FIHC subsidies and advantages, particularly guaranteed access to credit. APRP/RDI managed and ran a series of workshops with the managers of the ESA mills from 1999 through 2001 to strengthen management, improve understanding of the ESA organizational structure, and further develop the ESA organizations. While useful exercises, these workshops are not a substitute for hard-headed economic decision-making on several vexing issues:

- How feasible will it be for ESAs to pay down debt and gain control of their boards and management?
- Should all of the ESA rice milling capacity remain in place or should some mills be closed down?
- At what point will the ESA mills be able to go into the credit market and obtain their own financing?

## 5.3 Conserving Water in Rice Cultivation

APRP's biggest success in the rice subsector came through working closely with the MALR and the MWRI to coordinate planting of high-yielding, short-season rice varieties in the late 1990s along particular irrigation canals by particular groups of farmers, and in generally strengthening water supply management. APRP served as a catalyst in working across two key ministries that had previously lacked a strong history of collaboration. This alone is a critical achievement and an enduring part of the APRP legacy, going well beyond the rice subsector. The issue of conserving water used in cultivation of high water-consuming crops, rice and sugarcane, proved to be an excellent focal point for concentrating project and GOE efforts.

In coordinating planting of short-season varieties in certain irrigation command areas, APRP, the MALR and MWRI ensured that farmers would achieve higher yields and save water (in the aggregate) by synchronizing planting and (early) harvesting. Extension and monitoring efforts were timely and effective. Water savings were estimated at 13% with the coordinated growing, in pilot command areas, of selected short-season varieties. The initial focus on saving water in sugarcane and rice cultivation laid the basis for broader collaboration between MALR and MWRI on improved water supply management. As MALR shifted from a completely administered cropping pattern in the 1980s to an indicative cropping pattern for farmers in the 1990s, the risk of mismatching water deliveries with actual needs increased. This highlighted the need for MALR to provide timely input to MWRI on farmers' cropping intentions and actual plantings early in each major growing season. Here APRP/RDI and EPIQ staff played a crucial coordinating and technical assistance role in getting MALR extension agents to provide timely data on cropping patterns, irrigation canal by irrigation canal, to MWRI officials, who could then process these data, interpret them at the central level, and pass instructions regarding the timing and volume of Aswan High Dam water releases upstream that would best meet irrigation

requirements in the Delta 10-12 days later. Benchmarks on improving water management (at the directorate level) and matching water supply and demand were also successfully implemented and contributed to overall better water supply management, which indirectly benefited rice producers.

### 5.4 Policy Advocacy

A fourth set of APRP policy benchmarks that cut across commodity subsectors was the policy advocacy benchmarks. APRP guidance and support to the MFT in establishing the Agricultural Commodity Council (ACC) were instrumental in getting private sector input into policy discussions with key GOE officials. The immediate past Minister (of Trade and Supply), Dr. Ahmed Goueli, and the current Minister (Youssef Boutros Ghaly) were highly supportive of the APRP objective of formalizing private sector input into trade policy debates. APRP provided largely technical and limited financial support to a number of the ACC subcommittees, including the Subcommittee on Rice and Grains. Established in 1999, the Rice Subcommittee had superseded the Rice Branch of the Cereals Industry Chamber, based in Alexandria and operating under the umbrella of the Egyptian Federation of Industries[13], by 2001.

The Rice Subcommittee has broad membership, but the most influential members and advocates appear to be exporters. The Subcommittee played a critical role in convincing the Minister of Foreign Trade of the need to subsidize rice exports in 2000/01. The Minister took the brief prepared by the Subcommittee to the Cabinet and got it approved in late January 2001. A subsidy scheme was implemented, and record export levels ensued (755,000 mt by the end of the marketing season). While USAID and other donors might oppose the use of export subsidies, this particular advocacy success story illustrates the point that empowering stakeholders to defend and promote their interests may not always lead to optimal policy outcomes. Nevertheless, the principle of strengthening policy advocacy by trade and business associations is correct and important.[14]

The Rice Subcommittee has been recently engaged in another policy advocacy effort. It is considering ways to stabilize paddy prices, which have fluctuated a lot during the past several years. Millers and exporters are leading this effort, hoping to make paddy input prices more predictable (millers) and milled rice output prices more stable and competitive over time (exporters). With the onset of the paddy marketing season a month off, no apparent decisions have been made. The Rice Subcommittee proposal for paddy procurement in 2002/03 by the Rice Marketing Cooperatives no longer appears to be under serious consideration. As discussed elsewhere, implementation of this measure might not be the most efficient or lowest cost outcome; it would also displace thousands of private sector paddy traders and hired workers. Industry insiders report that the Rice Subcommittee of ACC and the Rice Branch of the Cereals Chamber have been lobbying PBDAC for cheap credit to buy the upcoming paddy crop. There are rumors that PBDAC will provide LE 100 million in loans to rice millers & exporters at a deeply discounted interest rates of 7%, 50% below the usual 14%.

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[13] During the 1990s, the Rice Branch was perceived as being too closely associated with the GOE, as it received EFI funding and its leader was a public sector rice miller. In recent elections (2001), private sector millers have replaced FIHC or public/ESA mill chairmen as the key leaders of the Rice Branch.

[14] See Brinkerhoff et al., 2002, Impact Assessment Report No. 19, for an more in-depth treatment of this issue.

## 5.5 Indirect Impacts of APRP Policy Reforms (not Directly Related to Rice)

Other policy benchmarks and implementation programs under APRP also affected the rice subsector in important ways. A significant body of work on cotton market liberalization helped cotton survive, although it appeared to be dropping out of the crop mix in 2000, with barely 500,000 feddans cultivated. APRP's work redressed uneven rates and extent of liberalization in the rice and cotton subsectors. Without APRP efforts, rice cultivation might have expanded even more and cotton could have become a marginal crop. APRP helped restore Egyptian lint cotton exports in foreign markets where Egypt's reputation as a reliable supplier had greatly suffered, particularly in Western Europe. APRP benchmarks designed to increase competition in the domestic seed cotton market and increase market outlets for farmers helped make cotton cultivation more attractive to farmers in 2001 and 2002. MVE urges the GOE to complete cotton marketing reform to avoid excessive area planted to paddy and the re-emergence of large rice surpluses that require subsidies for disposal.

Although the rice subsector study employs a partial equilibrium approach, it is important to think in broader systems terms. Interactions between the cotton and rice subsectors are important. Widely divergent rates and completeness of liberalization can lead to undesirable outcomes. In this case, rapid and complete liberalization of the rice trade led farmers to shift out of cotton into rice cultivation, and it encouraged entry into paddy trading and later, rice milling. Since GOE attempts to privatize the public sector rice milling companies lagged liberalization by five years, rather than a more optimal 2-3 years, private investors responded to the opportunities presented by a liberalized rice trade and a withering public milling industry by establishing commercial rice mills. Nothing comparable has taken place in the cotton subsector, as GOE liberalization has been slow and unconvincing to many private entrepreneurs, and cotton is still perceived widely as the government's crop. To be sure, private cotton trading and export enterprises have been established, but these do not require large investments. Two public ginning companies were privatized in 1996/97, two years after cotton market liberalization began (a reasonable gap), but efforts to privatize the public spinning companies were delayed and flawed.

## 6. FUTURE MONITORING AND APPLIED RESEARCH AGENDA

As the summer 2002 crops have been sown and the new marketing season will open within two months, following harvesting, the policy situation remains unsettled. The key questions are:

- Who will assemble the 2002 paddy crop? Will the GOE accept the arguments of the ACC Rice Subcommittee that one central agency or cooperative should assemble the paddy crop at fixed prices by variety?

- If such a scheme were implemented, who would finance it? Would public sector banks be asked to loan large sums of money to, say, the Rice Marketing Cooperatives? Or would millers and exporters pre-finance cooperative purchases?

- Will the GOE proclaim, at harvest, minimum producer paddy prices?

- Will ESA rice milling companies continue to receive large loans, guaranteed by the FIHC, at harvest time so they can enter the market early and forcefully to fulfill their paddy "requirements" early? Will such requirements be administratively determined by the FIHC and its officials sitting on ESA company Boards of Directors?

- Will the rice tariff reduction issue ever get back on the policy agenda? Or will policy inertia prevail, where changes are not seriously contemplated for lack of good information and analysis on the potential impacts of policy reform, lack of political will, and a vague fear that rice producers or millers might somehow be hurt by tariff reduction?

It is important to monitor developments in this critically important subsector, even if rice is not the subject of future benchmarks under a later policy reform program (or sub-program). Why? First, the summer crop choice facing farmers is influenced heavily by conditions in different field crop commodity markets. In many areas, rice, cotton and maize compete directly for the same scarce irrigated land and irrigation water. Farmers' perceptions of the alternative profitability of summer field crops (and rotations associated with those crops) are closely tied to pricing levels at planting time, GOE announcements of minimum producer prices, the range and convenience of alternative market outlets, and demand for particular varieties in trade (particularly in the export trade). Hence, any policy reform program that has cotton as a focal point needs to consider the impact of incentives to plant rice and how high levels of rice profitability (and area cultivated) can undercut any campaign to promote cotton production.

Second, rice is an important export crop (second to cotton among agricultural commodities) that has generated over $100 million per year in foreign exchange earnings since the 1995/96 marketing season, with an average of $120.7 over the past four (completed) marketing seasons, 1997/98 to 2000/01. Third, rice is a heavy user of water, and if high levels of rice are cultivated (over 1.5 million feddans) in future years, the paddy crop may draw (increasingly scarce irrigation) water away from new irrigation schemes outside the Nile valley.

Beyond monitoring of future policy decisions and their impact on the rice (and cotton) subsector, further applied research and implementation activities are recommended. First, improving estimates of area cropped to paddy, as well as yield and production forecasts and estimates, will benefit all the participants in the subsector. Note that MVE has been working with the MALR/EAS to improve estimates of area planted to major field crops. If improved methods are applied, paddy (and other crop) area estimates will become far more accurate. If disseminated in a timely manner and to a wide audience, these area estimates would greatly benefit producers, traders, millers and exporters (not to mention GOE officials).

Currently, production information is provided late or is erroneous, which has probably exacerbated market volatility and price swings. Once participants realize (belatedly) that paddy supply is not what they anticipated, their collective response can lead to rather abrupt market (prices) adjustments. As an example, rice milling activity this year is at a much lower level than last season, as the extent of the paddy crop shortfall in 2001, relative to the boom years of 1997, 1999 and 2000, was not fully appreciated until the rice marketing season was several months underway. In addition, exports have greatly slowed, as into-mill paddy prices are too high for millers and exporters to operate profitably. Large swings in export volume from year to year do not help Egypt's reputation as an exporter. This pendulum swinging behavior, where Egypt is in, then out of markets from one year to the next, plagued the cotton subsector from the late 1980s through the mid-1990s; as a result, Egypt lost significant market share to US pima, which was supplied more reliably.

APRP efforts to develop a rice web site have been laudable, and the site has been transferred to the MFT, but it is not clear if field data collection will continue without APRP incentives and if the database on rice prices and exports will be maintained. Improving collection, processing and reporting of paddy and rice prices is a secondary priority to upgrading paddy area and production forecasts. Timely, consistent price reporting is hard to do well and requires sustained focus and effort. If after, say, six months there is little evidence that MFT has the resources, trained staff, and interest in collecting primary price data and reporting it quickly, the APRP initiative can be considered as a laudable try but not worth sustaining (subsidizing) under MFT's purview.

Another important set of priorities is to monitor irrigation rotations, cropping patterns, and how water savings are used. This is consistent with the GOE objective of making more efficient use of scarce irrigation water. Monitoring whether matching of water supply and demand continues to be implemented effectively in irrigation districts is an important priority. It is also important to determine how theoretical water savings, from short-season rice cultivation, are actually used. For example, do farmers plant a quick-maturing vegetable crop between the rice harvest and planting of the winter crops? Can an economic value be placed on this "saved" water? If the saved water is not used in the Delta where short-season rice is harvested early, can the water be diverted to other parts of the irrigation system (new lands, North Sinai, Toshka) and used productively?

## 7. POLICY RECOMMENDATIONS

Based on five years of work in monitoring and assessing the impact of policy reform on the rice subsector, MVE offers the following policy prescriptions:

- Administrative controls on area planted do not work and have rarely been enforced. They need to be dropped. This would help to complete the unfinished agenda of completely removing area and crop pattern controls on producers, an artifact of the 1980s which has no place in the post-APRP era.

- The tariff on rice should be lowered progressively, perhaps five percentage points a year over 3-4 years. As this occurs, the impact on tariff reduction on rice import levels, domestic rice prices, domestic rice production, and domestic rice milling activity should be monitored closely.

- The GOE should not use export subsidies, even as a one-off solution to a problem of excess supply in a particularly good crop year, if subsidies cannot be sustained in later years. Use of subsidies in one year can create the expectation that subsidies will be implemented in the following years, which has potential to de-stabilize the market, as some observers claim happened in (2001/02).

- The GOE should not change the marketing system in a way that excludes private traders. Substituting rice marketing cooperatives or PBDAC for the private trade will likely lead to higher marketing costs, as well as eliminate significant employment opportunities in rural areas. Competition for paddy, rather than a guaranteed market for a particular agency, will lead to the best performance outcomes.

- The GOE and donors should discontinue support to the ESA rice mills, even in providing training workshops. As long as the FIHC is managing the ESA mills, they are unlikely to benefit from such training. The FIHC will continue to guarantee ESA mills' access to bank credit, as well as to secure export contracts. The FIHC has proved to be relatively impenetrable to privatization, and barring a change in its leadership, USAID should not contemplate working with FIHC.

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## STATISTICAL ANNEX: LIST OF TABLES

Rice Area and Production Tables

Tables 1a-1c: Rice Area, Production and Yield by Governorate, 1990/91-2001/02

Table 2a : Area, Yield and Production of Summer Rice by Variety, 1990-2001

Table 2b: Area Planted and Production by Variety, 1997-2001

Figure 1: Pie Charts showing short-season and long-season varieties (selected years)

Table 3: Area Planted to Summer Crops in the Seven Major Rice-Producing Governorates, 1990-2001

Figure 2: Area Planted to the Three Major Summer Crops in the Rice- Producing Governorates, 1990-2001

Table 4: Paddy and Rice Supply and Use Estimates, 1990/91-2001/02

Domestic Rice Prices

Table 5: Average Producer Paddy Prices, by Governorate, 1990 to 2000

Table 6: Into-Mill Wholesale Paddy Prices by Variety, October 1998-June 2002

Figure 3: Into-Mill Wholesale Paddy Prices by Variety, October 1998-June 2002

Table 7: Minimum and Maximum Wholesale and Retail Rice Prices for Four Urban Governorates, August 1998-March 2002

Egyptian Rice Exports and Export Prices (and Prices of Internationally Traded Competitors)

Table 8: Rice Export Volume and Value, 1995/96 to 2001/02

Table 9: Egyptian Rice Exports by Country of Destination, 1995/96 to 2001/02

Figure 4: Rice Exports by Region, 1993/94 to 2000/01

Table 10: Shares of Egyptian Rice Exports by Private and Public Exporters, 1996/97 to 2001/02

Table 11: Monthly Volume and Value of Egyptian Rice Exports and Calculated Unit Values, August 1997 to March 2002

Table 12: Egyptian Rice Export Prices, November 2000-March 2002

Table 13: Monthly Export Prices (FOB) for Egyptian Rice, by Major Importing Country, September

## Table 1a : Area Cultivated to Paddy by Region in Egypt, 1980 - 2001

(feddans)

| Year | Fayoum | Kafr El-Shiekh | Beheira | Gharbia | Dakahlia | Damietta | Sharkia | Others | Total Egypt |
|---|---|---|---|---|---|---|---|---|---|
| 1980 | 14,637 | 212,711 | 173,439 | 90,140 | 269,261 | 47,495 | 150,009 | 12,404 | 970,096 |
| 1981 | 14,334 | 195,818 | 170,986 | 92,958 | 266,476 | 49,611 | 152,544 | 11,415 | 954,142 |
| 1982 | 14,477 | 214,250 | 176,222 | 97,142 | 277,825 | 48,449 | 181,001 | 14,590 | 1,023,956 |
| 1983 | 12,414 | 212,908 | 175,781 | 95,381 | 278,571 | 52,512 | 171,307 | 12,392 | 1,011,266 |
| 1984 | 12,515 | 215,630 | 169,791 | 91,370 | 269,983 | 47,815 | 165,994 | 10,360 | 983,458 |
| 1985 | 9,729 | 213,400 | 163,693 | 83,744 | 255,825 | 43,213 | 144,684 | 9,683 | 923,971 |
| 1986 | 12,315 | 218,832 | 171,132 | 95,036 | 280,217 | 53,135 | 163,465 | 13,662 | 1,007,794 |
| 1987 | 12,784 | 224,929 | 163,026 | 90,913 | 280,774 | 54,348 | 143,676 | 10,610 | 981,060 |
| 1988 | 11,685 | 221,711 | 159,004 | 59,399 | 217,365 | 52,802 | 105,579 | 9,505 | 837,050 |
| 1989 | 12,554 | 227,582 | 164,734 | 80,716 | 283,091 | 57,188 | 139,513 | 11,766 | 977,144 |
| 1990 | 13,707 | 235,079 | 167,134 | 88,067 | 304,532 | 62,045 | 150,014 | 15,767 | 1,036,345 |
| 1991 | 14,351 | 247,970 | 169,860 | 95,401 | 327,153 | 61,168 | 164,498 | 19,258 | 1,099,659 |
| 1992 | 17,973 | 267,312 | 177,952 | 110,353 | 359,558 | 63,986 | 191,756 | 25,637 | 1,214,527 |
| 1993 | 21,840 | 252,620 | 183,651 | 120,400 | 395,740 | 64,601 | 210,215 | 27,228 | 1,276,295 |
| 1994 | 28,919 | 258,804 | 215,936 | 132,215 | 400,277 | 67,540 | 223,732 | 50,287 | 1,377,710 |
| 1995 | 30,648 | 286,348 | 209,213 | 137,870 | 409,494 | 63,448 | 215,699 | 47,300 | 1,400,020 |
| 1996 | 35,483 | 269,201 | 212,259 | 128,844 | 412,198 | 68,088 | 228,217 | 50,978 | 1,405,268 |
| 1997 | 36,593 | 276,811 | 244,698 | 155,656 | 453,796 | 66,732 | 247,677 | 45,556 | 1,527,519 |
| 1998 | 20,873 | 260,877 | 184,055 | 119,523 | 386,926 | 54,083 | 177,834 | 20,784 | 1,224,955 |
| 1999 | 35,211 | 310,156 | 212,112 | 153,078 | 461,260 | 61,318 | 243,850 | 59,892 | 1,536,877 |
| 2000 | 28,300 | 282,700 | 246,200 | 166,400 | 453,700 | 58,300 | 280,600 | 51,400 | 1,567,600 |
| 2001 | 16,218 | 259,402 | 201,123 | 125,322 | 406,669 | 55,344 | 235,861 | 40,333 | 1,340,272 |

Source: MALR, Economic Affairs Sector, Agricultural Statistics: Summer and Nili Crops, various years.

## Table 1b : Paddy Production by Region in Egypt, 1980 - 2001

(metric tons)

| Year | Fayoum | Kafr El-Shiekh | Beheira | Gharbia | Dakahlia | Damietta | Sharkia | Others | Total Egypt |
|---|---|---|---|---|---|---|---|---|---|
| **1980** | 33,141 | 514,560 | 439,954 | 239,393 | 646,160 | 122,035 | 357,183 | 29,326 | 2,381,752 |
| **1981** | 31,088 | 439,091 | 438,350 | 244,496 | 582,891 | 112,618 | 355,831 | 29,681 | 2,234,046 |
| **1982** | 32,071 | 478,027 | 479,844 | 261,801 | 592,611 | 118,498 | 444,603 | 31,314 | 2,438,769 |
| **1983** | 27,824 | 483,313 | 480,868 | 268,503 | 595,394 | 128,331 | 429,230 | 26,492 | 2,439,955 |
| **1984** | 28,282 | 455,246 | 437,874 | 223,389 | 562,530 | 114,270 | 391,588 | 21,931 | 2,235,110 |
| **1985** | 23,341 | 506,524 | 460,296 | 244,599 | 578,207 | 108,603 | 366,222 | 22,512 | 2,310,304 |
| **1986** | 26,219 | 479,085 | 499,463 | 274,534 | 585,287 | 124,787 | 421,995 | 32,410 | 2,443,780 |
| **1987** | 26,350 | 517,888 | 476,879 | 258,667 | 605,664 | 127,726 | 364,598 | 26,528 | 2,404,300 |
| **1988** | 27,764 | 534,736 | 504,553 | 182,849 | 475,973 | 123,730 | 255,953 | 25,012 | 2,130,570 |
| **1989** | 31,066 | 574,060 | 562,802 | 271,209 | 679,529 | 147,839 | 372,180 | 31,560 | 2,670,245 |
| **1990** | 34,196 | 664,834 | 567,356 | 292,394 | 920,095 | 191,010 | 453,462 | 42,779 | 3,166,126 |
| **1991** | 40,773 | 716,873 | 580,248 | 321,980 | 1,068,295 | 187,649 | 483,112 | 47,640 | 3,446,570 |
| **1992** | 51,561 | 829,099 | 620,903 | 372,434 | 1,170,073 | 198,114 | 597,301 | 68,849 | 3,908,334 |
| **1993** | 62,863 | 819,052 | 637,996 | 406,740 | 1,291,919 | 183,341 | 667,750 | 77,952 | 4,147,613 |
| **1994** | 84,181 | 897,532 | 762,687 | 451,912 | 1,328,920 | 204,037 | 712,138 | 140,494 | 4,581,901 |
| **1995** | 91,908 | 1,004,818 | 775,356 | 495,213 | 1,384,994 | 191,826 | 708,858 | 135,124 | 4,788,097 |
| **1996** | 104,852 | 912,591 | 774,108 | 439,744 | 1,506,171 | 207,396 | 794,195 | 156,331 | 4,895,388 |
| **1997** | 110,474 | 914,434 | 902,202 | 534,056 | 1,658,171 | 237,232 | 879,253 | 180,411 | 5,416,233 |
| **1998** | 68,881 | 913,070 | 699,409 | 430,283 | 1,431,626 | 183,882 | 657,986 | 65,100 | 4,450,237 |
| **1999** | 113,053 | 1,130,795 | 830,608 | 574,933 | 1,798,213 | 214,837 | 943,435 | 210,307 | 5,816,181 |
| **2000** | 96,094 | 1,099,440 | 974,007 | 636,228 | 1,767,459 | 190,265 | 1,073,203 | 163,800 | 6,000,496 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **2001** | 59,001 | 1,007,777 | 797,252 | 489,666 | 1,624,395 | 196,471 | 921,037 | 131,104 | 5,226,703 |

Source: MALR, Economic Affairs Sector, Agricultural Statistics: Summer and Nili Crops, various years.

**Table 1c : Paddy Yield by Region in Egypt, 1980 - 2001**

(mt/feddan)

| Year | Fayoum | Kafr El-Shiekh | Beheira | Gharbia | Dakahlia | Damietta | Sharkia | Other | Total Egypt |
|---|---|---|---|---|---|---|---|---|---|
| **1980** | 2.26 | 2.42 | 2.54 | 2.66 | 2.40 | 2.57 | 2.38 | 2.36 | 2.46 |
| **1981** | 2.17 | 2.24 | 2.56 | 2.63 | 2.19 | 2.27 | 2.33 | 2.60 | 2.34 |
| **1982** | 2.22 | 2.23 | 2.72 | 2.70 | 2.13 | 2.45 | 2.46 | 2.15 | 2.38 |
| **1983** | 2.24 | 2.27 | 2.74 | 2.82 | 2.14 | 2.44 | 2.51 | 2.14 | 2.41 |
| **1984** | 2.26 | 2.11 | 2.58 | 2.44 | 2.08 | 2.39 | 2.36 | 2.12 | 2.27 |
| **1985** | 2.40 | 2.37 | 2.81 | 2.92 | 2.26 | 2.51 | 2.53 | 2.32 | 2.50 |
| **1986** | 2.13 | 2.19 | 2.92 | 2.89 | 2.09 | 2.35 | 2.58 | 2.37 | 2.42 |
| **1987** | 2.06 | 2.30 | 2.93 | 2.85 | 2.16 | 2.35 | 2.54 | 2.50 | 2.45 |
| **1988** | 2.38 | 2.41 | 3.17 | 3.08 | 2.19 | 2.34 | 2.42 | 2.63 | 2.55 |
| **1989** | 2.47 | 2.52 | 3.42 | 3.36 | 2.40 | 2.59 | 2.67 | 2.68 | 2.73 |
| **1990** | 2.49 | 2.83 | 3.39 | 3.32 | 3.02 | 3.08 | 3.02 | 2.71 | 3.06 |
| **1991** | 2.84 | 2.89 | 3.42 | 3.38 | 3.27 | 3.07 | 2.94 | 2.47 | 3.13 |
| **1992** | 2.87 | 3.10 | 3.49 | 3.37 | 3.25 | 3.10 | 3.11 | 2.69 | 3.22 |
| **1993** | 2.88 | 3.24 | 3.47 | 3.38 | 3.26 | 2.84 | 3.18 | 2.86 | 3.25 |
| **1994** | 2.91 | 3.47 | 3.53 | 3.42 | 3.32 | 3.02 | 3.18 | 2.79 | 3.33 |
| **1995** | 3.00 | 3.51 | 3.71 | 3.59 | 3.38 | 3.02 | 3.29 | 2.86 | 3.42 |
| **1996** | 2.95 | 3.39 | 3.65 | 3.41 | 3.65 | 3.05 | 3.48 | 3.07 | 3.48 |
| **1997** | 3.02 | 3.30 | 3.69 | 3.43 | 3.65 | 3.55 | 3.55 | 3.96 | 3.55 |
| **1998** | 3.30 | 3.50 | 3.80 | 3.60 | 3.70 | 3.40 | 3.70 | 3.13 | 3.63 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1999** | 3.21 | 3.65 | 3.92 | 3.76 | 3.90 | 3.50 | 3.87 | 3.51 | 3.78 |
| **2000** | 3.40 | 3.89 | 3.96 | 3.82 | 3.90 | 3.26 | 3.82 | 3.19 | 3.83 |
| **2001** | 3.64 | 3.89 | 3.96 | 3.91 | 3.99 | 3.55 | 3.90 | 3.25 | 3.90 |

Source: MALR, Economic Affairs Sector, Agricultural Statistics: Summer and Nili Crops, various years.

## Table 2a : Area, Yield and Production of Summer Rice by Variety, 1990-2001

| Location of Production | | All Varieties | | | Giza 171 | | | Giza 172 | | | Giza 175 | | | Giza 176 | | | Giza 181 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Area | Yield | Prod. | Area | Yield | Prod. | Area | Yield | Prod. | Area | Yield | Prod. | Area | Yield | Prod. | Area | Yield | Prod. |
| | | Fed. | mt/fd. | mt | Fed. | mt/fd. | mt | Fed. | mt/fd. | mt | Fed. | mt/fd. | mt | Fed. | mt/fd. | mt | Fed. | mt/fd. | mt |
| 1990 | Total Valley | 1,034,830 | 3.06 | 3,162,642 | 486,192 | 3.03 | 1,472,826 | 294,029 | 2.63 | 771,906 | 57,856 | 3.48 | 201,294 | 59,197 | 3.61 | 213,638 | 45,949 | 3.85 | 176,699 |
| | Desert & New Land | 1,515 | 2.30 | 3,485 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 |
| | Total Egypt | 1,036,345 | 3.06 | 3,166,126 | 486,192 | 3.03 | 1,472,826 | 294,029 | 2.63 | 771,906 | 57,856 | 3.48 | 201,294 | 59,197 | 3.61 | 213,638 | 45,949 | 3.85 | 176,699 |
| 1991 | Total Valley | 1,094,608 | 3.14 | 3,437,478 | 530,646 | 3.08 | 1,633,613 | 218,538 | 2.76 | 603,642 | 42,178 | 3.44 | 145,113 | 211,348 | 3.46 | 732,029 | 42,422 | 3.42 | 145,282 |
| | Desert & New Land | 5,051 | 1.80 | 9,092 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 |
| | Total Egypt | 1,099,659 | 3.13 | 3,446,570 | 530,646 | 3.08 | 1,633,613 | 218,538 | 2.76 | 603,642 | 42,178 | 3.44 | 145,113 | 211,348 | 3.46 | 732,029 | 42,422 | 3.42 | 145,282 |
| 1992 | Total Valley | 1,209,141 | 3.22 | 3,897,926 | 595,314 | 3.14 | 1,870,710 | 180,780 | 2.98 | 538,432 | 31,399 | 3.52 | 110,555 | 310,082 | 3.39 | 1,052,653 | 43,082 | 3.60 | 154,894 |
| | Desert & New Land | 5,386 | 1.93 | 10,408 | 5,386 | 1.93 | 10,408 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 |
| | Total Egypt | 1,214,527 | 3.22 | 3,908,334 | 600,700 | 3.13 | 1,881,118 | 180,780 | 2.98 | 538,432 | 31,399 | 3.52 | 110,555 | 310,082 | 3.39 | 1,052,653 | 43,082 | 3.60 | 154,894 |
| 1993 | Total Valley | 1,276,295 | 3.25 | 4,147,613 | 615,741 | 3.13 | 1,926,701 | 137,170 | 2.98 | 408,134 | 30,210 | 3.37 | 101,948 | 398,969 | 3.45 | 1,376,227 | 37,857 | 3.55 | 134,218 |
| | Desert & New Land | 5,495 | 2.10 | 11,522 | 5,495 | 2.10 | 11,522 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 |
| | Total Egypt | 1,281,790 | 3.24 | 4,159,135 | 621,236 | 3.12 | 1,938,223 | 137,170 | 2.98 | 408,134 | 30,210 | 3.37 | 101,948 | 398,969 | 3.45 | 1,376,227 | 37,857 | 3.55 | 134,218 |
| 1994 | Total Valley | 1,371,017 | 3.33 | 4,566,681 | 691,263 | 3.23 | 2,231,059 | 165,598 | 3.14 | 519,849 | 38,903 | 3.44 | 133,643 | 429,062 | 3.53 | 1,515,078 | 8,499 | 4.01 | 34,076 |
| | Desert & New Land | 6,693 | 2.27 | 15,220 | 6,693 | 2.27 | 15,220 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 |
| | Total Egypt | 1,377,710 | 3.33 | 4,581,901 | 697,956 | 3.22 | 2,246,279 | 165,598 | 3.14 | 519,849 | 38,903 | 3.44 | 133,643 | 429,062 | 3.53 | 1,515,078 | 8,499 | 4.01 | 34,076 |
| 1995 | Total Valley | 1,386,449 | 3.43 | 4,755,220 | 750,438 | 3.42 | 2,565,773 | 150,587 | 3.27 | 492,216 | 24,015 | 3.64 | 87,466 | 377,535 | 3.54 | 1,334,955 | 6,600 | 3.98 | 26,256 |
| | Desert & New Land | 13,571 | 2.42 | 32,878 | 1,271 | 2.22 | 2,826 | 2,375 | 1.58 | 3,743 | 140 | 2.60 | 364 | 8,526 | 2.66 | 22,689 | 0 | 0.00 | 0 |
| | Total Egypt | 1,400,020 | 3.42 | 4,788,098 | 751,709 | 3.42 | 2,568,599 | 152,962 | 3.24 | 495,959 | 24,155 | 3.64 | 87,830 | 386,061 | 3.52 | 1,357,644 | 6,600 | 3.98 | 26,256 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1996** | **Total Valley** | 1,386,198 | 3.49 | 4,843,685 | 709,875 | 3.45 | 2,448,591 | 85,726 | 3.26 | 279,477 | 9,403 | 3.59 | 33,762 | 264,432 | 3.42 | 903,830 | 4,696 | 4.03 | 18,929 |
| | **Desert & New Land** | 19,070 | 2.71 | 51,703 | 6,566 | 2.65 | 17,388 | 900 | 2.75 | 2,475 | 774 | 2.00 | 1,546 | 8,164 | 2.88 | 23,500 | 0 | 0.00 | 0 |
| | **Total Egypt** | 1,405,268 | 3.48 | 4,895,388 | 716,441 | 3.44 | 2,465,979 | 86,626 | 3.25 | 281,952 | 10,177 | 3.47 | 35,308 | 272,596 | 3.40 | 927,330 | 4,696 | 4.03 | 18,929 |
| **1997** | **Total Valley** | 1,525,756 | 3.55 | 5,412,448 | 742,001 | 3.51 | 2,607,743 | 98,529 | 3.30 | 325,063 | 919 | 3.35 | 3,081 | 159,424 | 3.38 | 538,901 | 1,866 | 4.09 | 7,634 |
| | **Desert & New Land** | 24,116 | 2.80 | 67,562 | 8,951 | 2.43 | 21,795 | 296 | 2.66 | 788 | 45 | 3.00 | 135 | 11,852 | 3.11 | 36,807 | 0 | 0.00 | 0 |
| | **Total Egypt** | 1,549,872 | 3.54 | 5,480,010 | 750,952 | 3.50 | 2,629,538 | 98,825 | 3.30 | 325,851 | 964 | 3.34 | 3,216 | 171,276 | 3.36 | 575,708 | 1,866 | 4.09 | 7,634 |
| **1998** | **Total Valley** | 1,201,730 | 3.64 | 4,375,813 | 447,756 | 3.58 | 1,604,512 | 12,843 | 3.25 | 41,783 | 2,296 | 3.06 | 7,032 | 58,488 | 3.38 | 197,438 | | | |
| | **Desert & New Land** | 23,225 | 3.20 | 74,424 | 17,835 | 3.40 | 60,683 | 830 | 2.09 | 1,737 | 0 | 0.00 | 0 | 3,312 | 2.60 | 8,601 | | | |
| | **Total Egypt** | 1,224,955 | 3.63 | 4,450,237 | 465,591 | 3.58 | 1,665,195 | 13,673 | 3.18 | 43,520 | 2,296 | 3.06 | 7,032 | 61,800 | 3.33 | 206,039 | | | |
| **1999** | **Total Valley** | 1,511,877 | 3.74 | 5,661,879 | 310,441 | 3.52 | 1,092,278 | 9,908 | 3.22 | 31,870 | | | | 65,437 | 3.24 | 212,267 | 201 | 3.99 | 802 |
| | **Desert & New Land** | 25,000 | 3.39 | 84,691 | 1,399 | 3.00 | 4,198 | 0 | 0.00 | 0 | | | | 136 | 3.50 | 476 | 0 | 0.00 | 0 |
| | **Total Egypt** | 1,536,877 | 3.74 | 5,746,570 | 311,840 | 3.52 | 1,096,476 | 9,908 | 3.22 | 31,870 | | | | 65,573 | 3.24 | 212,743 | 201 | 3.99 | 802 |
| **2000** | **Total Valley** | 1,539,531 | 3.83 | 5,903,718 | 157,821 | 3.51 | 553,489 | 4,238 | 3.24 | 13,723 | | | | 65,398 | 3.25 | 212,430 | | | |
| | **Desert & New Land** | 29,405 | 3.29 | 96,778 | 13,826 | 3.05 | 42,238 | 15 | 3.00 | 45 | | | | 430 | 3.30 | 1,419 | | | |
| | **Total Egypt** | 1,568,936 | 3.82 | 6,000,496 | 171,647 | 3.47 | 595,727 | 4,253 | 3.24 | 13,768 | | | | 65,828 | 3.25 | 213,849 | | | |
| **2001** | **Total Valley** | 1,330,417 | 3.91 | 5,197,505 | 107,230 | 3.29 | 353,195 | 401 | 3.04 | 1,221 | | | | 6,155 | 3.37 | 20,735 | 4 | 0.00 | 18 |
| | **Desert & New Land** | 9,853 | 2.96 | 29,198 | 9,853 | 2.96 | 29,198 | 0 | 0.00 | 0 | | | | 0 | 0.00 | 0 | 0 | 0.00 | 0 |
| | **Total Egypt** | 1,340,270 | 3.90 | 5,226,703 | 117,083 | 3.27 | 382,393 | 401 | 3.04 | 1,221 | | | | 6,155 | 3.37 | 20,735 | 4 | 0.00 | 18 |

Source : MALR, Economics Affairs Sector, Agricultural Statistics: Summer and Nili Crops, various years.

## Table 2a : Area, Yield and Production of Summer Rice by Variety, 1990-2001,Continued

| Location of Production | | IR 28 | | | Reho (Giza 173) | | | Giza 178 | | | Giza 177 | | | Sakha 101 | | | Sakha 102 | | | Other | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Area | Yiel | Prod. | Area | Yiel | Prod. | Area | Yiel | Prod. | Area | Yiel | Prod. | Area | Yield | Prod. | Area | Yield | Prod. | Area | Yield | Prod. |
| | | Fed. | mt/ | mt | Fed. | mt/ | mt | Fed. | mt/ | mt | Fed. | mt/ | mt | Fed. | mt/ | mt | Fed. | mt/ | mt | Fed. | mt/ fd. | mt |
| 1990 | Total Valley | 73,40 | 3.7 | 273,09 | 11,87 | 2.8 | 34,283 | | | | | | | | | | | | | 6,324 | 2.99 | 18,905 |
| | Desert & New Land | 0 | 0.0 | 0 | 0 | 0.0 | 0 | | | | | | | | | | | | | 1,515 | 2.30 | 3,485 |
| | Total Egypt | 73,40 | 3.7 | 273,09 | 11,87 | 2.8 | 34,283 | | | | | | | | | | | | | 7,839 | 2.86 | 22,390 |
| 1991 | Total Valley | 18,58 | 4.2 | 78,317 | 23,60 | 3.2 | 76,312 | | | | | | | | | | | | | 7,287 | 3.18 | 23,170 |
| | Desert & New Land | 0 | 0.0 | 0 | 0 | 0.0 | 0 | | | | | | | | | | | | | 5,051 | 1.80 | 9,092 |
| | Total Egypt | 18,58 | 4.2 | 78,317 | 23,60 | 3.2 | 76,312 | | | | | | | | | | | | | 12,338 | 2.61 | 32,262 |
| 1992 | Total Valley | 18,75 | 4.1 | 77,159 | 15,36 | 3.1 | 48,031 | | | | | | | | | | | | | 14,360 | 3.17 | 45,492 |
| | Desert & New Land | 0 | 0.0 | 0 | 0 | 0.0 | 0 | | | | | | | | | | | | | 0 | 0.00 | 0 |
| | Total Egypt | 18,75 | 4.1 | 77,159 | 15,36 | 3.1 | 48,031 | | | | | | | | | | | | | 14,360 | 3.17 | 45,492 |
| 1993 | Total Valley | 26,90 | 4.2 | 113,40 | 27,82 | 2.9 | 81,545 | | | | | | | | | | | | | 1,619 | 3.36 | 5,438 |
| | Desert & New Land | 0 | 0.0 | 0 | 0 | 0.0 | 0 | | | | | | | | | | | | | 0 | 0.00 | 0 |
| | Total Egypt | 26,90 | 4.2 | 113,40 | 27,82 | 2.9 | 81,545 | | | | | | | | | | | | | 1,619 | 3.36 | 5,438 |
| 1994 | Total Valley | 681 | 3.4 | 2,341 | 35,57 | 3.5 | 125,53 | | | | | | | | | | | | | 1,439 | 3.54 | 5,098 |
| | Desert & New Land | 0 | 0.0 | 0 | 0 | 0.0 | 0 | | | | | | | | | | | | | 0 | 0.00 | 0 |
| | Total Egypt | 681 | 3.4 | 2,341 | 35,57 | 3.5 | 125,53 | | | | | | | | | | | | | 1,439 | 3.54 | 5,098 |
| 1995 | Total Valley | 16 | 3.8 | 62 | 39,65 | 3.1 | 125,87 | 3,670 | 3.6 | 13,519 | 23,742 | 3.4 | 80,889 | | | | | | | 10,194 | 2.77 | 28,205 |
| | Desert & New Land | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 0 | | | | | | | 1,259 | 2.59 | 3,256 |
| | Total Egypt | 16 | 3.8 | 62 | 39,65 | 3.1 | 125,87 | 3,670 | 3.6 | 13,519 | 23,742 | 3.4 | 80,889 | | | | | | | 11,453 | 2.75 | 31,461 |
| 1996 | Total Valley | 0 | 0.0 | 0 | 51,18 | 3.3 | 171,68 | 126,57 | 4.1 | 521,580 | 134,06 | 3.4 | 465,044 | | | | | | | 247 | 3.21 | 792 |
| | Desert & New Land | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 0 | | | | | | | 2,666 | 2.55 | 6,794 |
| | Total Egypt | 0 | 0.0 | 0 | 51,18 | 3.3 | 171,68 | 126,57 | 4.1 | 521,580 | 134,06 | 3.4 | 465,044 | | | | | | | 2,913 | 2.60 | 7,586 |
| 1997 | Total Valley | 652 | 4.4 | 2,884 | 55,56 | 3.4 | 190,70 | 294,14 | 3.8 | 1,123,05 | 167,93 | 3.5 | 596,649 | | | | | | | 4,715 | 3.55 | 16,735 |
| | Desert & New Land | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 1,430 | 3.1 | 4,477 | 317 | 2.4 | 769 | | | | | | | 1,225 | 2.28 | 2,791 |
| | Total Egypt | 652 | 4.4 | 2,884 | 55,56 | 3.4 | 190,70 | 295,57 | 3.8 | 1,127,52 | 168,25 | 3.5 | 597,418 | | | | | | | 5,940 | 3.29 | 19,526 |
| 1998 | Total Valley | 270 | 3.7 | 1,004 | 39,80 | 3.4 | 137,52 | 282,21 | 3.8 | 1,078,85 | 279,96 | 3.5 | 1,000,761 | 42,680 | 4.09 | 174,479 | 35,286 | 3.74 | 132,011 | 131 | 3.11 | 408 |
| | Desert & New Land | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 756 | 2.8 | 2,179 | 492 | 2.4 | 1,224 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 |
| | Total Egypt | 270 | 3.7 | 1,004 | 39,80 | 3.4 | 137,52 | 282,97 | 3.8 | 1,081,03 | 280,45 | 3.5 | 1,001,985 | 42,680 | 4.09 | 174,479 | 35,286 | 3.74 | 132,011 | 131 | 3.11 | 408 |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 | Total Valley | | | | 48,42 | 3.4 | 167,99 | 346,49 | 3.9 | 1,374,72 | 285,04 | 3.5 | 1,023,388 | 214,575 | 4.08 | 875,600 | 222,823 | 3.84 | 855,354 | 8,527 | 3.24 | 27,607 |
| | Desert & New Land | | | | 0 | 0.0 | 0 | 5,747 | 3.6 | 20,670 | 8,572 | 3.4 | 29,523 | 8,414 | 3.21 | 27,042 | 0 | 0.00 | 0 | 732 | 3.80 | 2,782 |
| | Total Egypt | | | | 48,42 | 3.4 | 167,99 | 352,24 | 3.9 | 1,395,39 | 293,62 | 3.5 | 1,052,911 | 222,989 | 4.05 | 902,642 | 222,823 | 3.84 | 855,354 | 9,259 | 3.28 | 30,389 |
| 2000 | Total Valley | | | | 29,93 | 3.3 | 98,967 | 373,02 | 3.9 | 1,476,57 | 279,83 | 3.6 | 1,023,772 | 386,814 | 4.09 | 1,582,889 | 215,734 | 3.94 | 849,588 | 26,726 | 3.45 | 92,283 |
| | Desert & New Land | | | | 0 | 0.0 | 0 | 13,211 | 3.5 | 46,390 | 1,046 | 3.2 | 3,405 | 321 | 3.36 | 1,077 | 530 | 3.94 | 2,090 | 26 | 4.38 | 114 |
| | Total Egypt | | | | 29,93 | 3.3 | 98,967 | 386,23 | 3.9 | 1,522,96 | 280,88 | 3.6 | 1,027,177 | 387,135 | 4.09 | 1,583,966 | 216,264 | 3.94 | 851,678 | 26,752 | 3.45 | 92,397 |
| 2001 | Total Valley | | | | 18,34 | 3.5 | 65,182 | 245,43 | 3.8 | 954,105 | 280,21 | 3.5 | 1,005,639 | 484,585 | 4.17 | 2,021,077 | 163,042 | 4.22 | 688,068 | 25,009 | 3.53 | 88,265 |
| | Desert & New Land | | | | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 |
| | Total Egypt | | | | 18,34 | 3.5 | 65,182 | 245,43 | 3.8 | 954,105 | 280,21 | 3.5 | 1,005,639 | 484,585 | 4.17 | 2,021,077 | 163,042 | 4.22 | 688,068 | 25,009 | 3.53 | 88,265 |

## Table 2b : Area Planted and Production by Rice Variety, 1997-2001

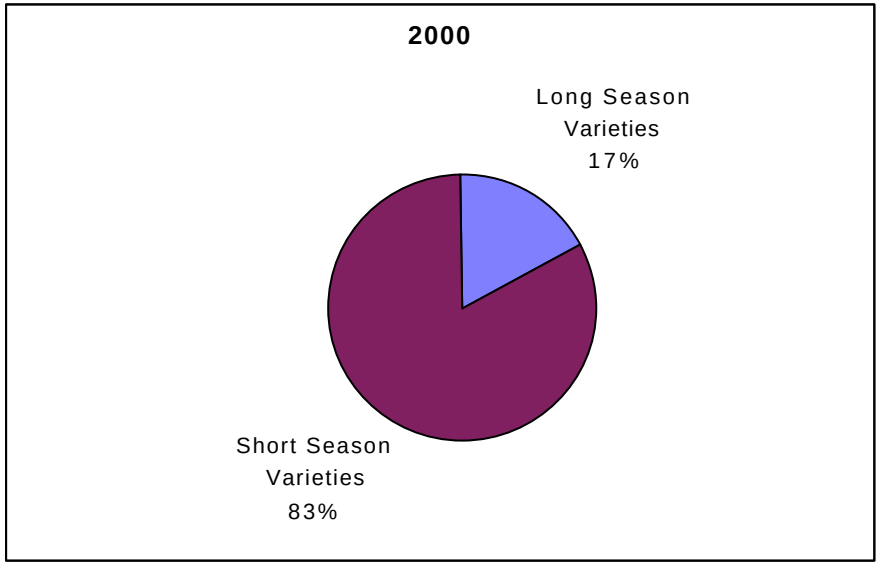
**(area in '000 feddans; paddy production in '000 mt)**

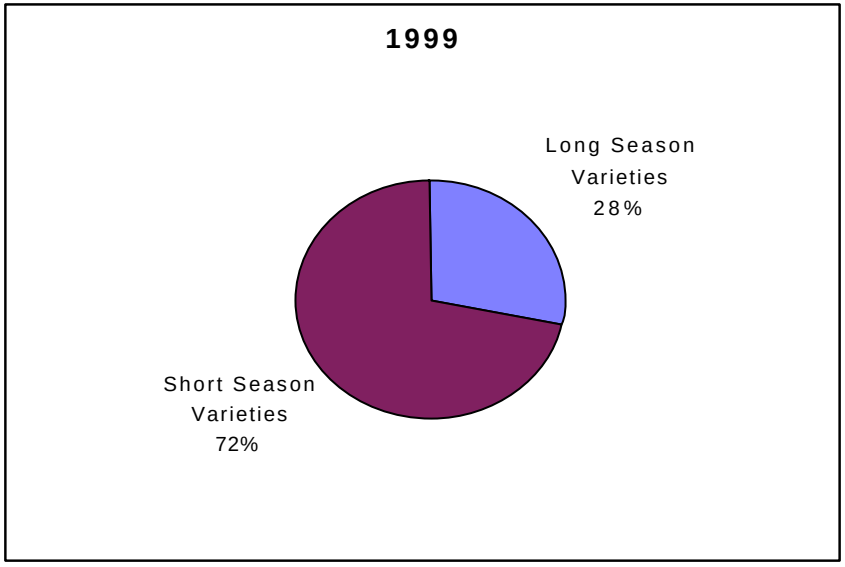
| Type | 2001 | | | | 2000 | | | | 1999 | | | | 1998 | | | | 1997 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Area | % | Prod. | % | Area | % | Prod. | % | Area | % | Prod. | % | Area | % | Prod. | % | Area | % | Prod. | % |
| Long Season Varieties | 142.0 | 10.6 | 469.5 | | 271.5 | 17.3 | 922.0 | 15.4 | 435.7 | 27.9 | 1,509.0 | 25.9 | 580.9 | 47.4 | 2,052.2 | 46.1 | 1,076.6 | 69.5 | 3,721.8 | 67.9 |
| Giza 171 | 117.1 | 8.7 | 382.4 | 7.3 | 171.6 | 10.9 | 595.7 | 9.9 | 311.8 | 20.0 | 1,096.5 | 18.9 | 465.6 | 38.0 | 1,665.2 | 37.4 | 751.0 | 48.5 | 2,629.5 | 48.0 |
| Giza 172 | 0.4 | 0.0 | 1.2 | 0.0 | 4.2 | 0.3 | 13.8 | 0.2 | 9.9 | 0.6 | 31.9 | 0.5 | 13.7 | 1.1 | 43.5 | 1.0 | 98.8 | 6.4 | 325.9 | 5.9 |
| Giza 173 (Reho) | 18.3 | 1.4 | 65.2 | 1.2 | 29.9 | 1.9 | 98.7 | 1.6 | 48.4 | 3.1 | 167.9 | 2.9 | 39.8 | 3.2 | 137.5 | 3.1 | 55.6 | 3.6 | 190.7 | 3.5 |
| Giza 176 | 6.2 | 0.5 | 20.7 | 0.4 | 65.8 | 4.2 | 213.8 | 3.6 | 65.6 | 4.2 | 212.7 | 3.7 | 61.8 | 5.0 | 206.0 | 4.6 | 171.3 | 11.1 | 575.7 | 10.5 |
| Short Season Varieties | 1,173.3 | 87.5 | 4,668.9 | 89.3 | 1,271.9 | 81.1 | 4,986.2 | 83.1 | 1,091.7 | 70.0 | 4,207.0 | 72.3 | 643.7 | 52.6 | 2,396.5 | 53.8 | 466.7 | 30.1 | 1,735.8 | 31.7 |
| Giza 175 | | | | | | | | | | | | | 2.3 | 0.2 | 7.0 | 0.2 | 1.0 | 0.1 | 3.2 | 0.1 |
| Giza 177 | 280.2 | 20.9 | 1,005.6 | 19.2 | 280.9 | 17.9 | 1,027.2 | 17.1 | 293.6 | 18.8 | 1,052.9 | 18.1 | 280.4 | 22.9 | 1,002.0 | 22.5 | 168.3 | 10.9 | 597.4 | 10.9 |
| Giza 178 | 245.4 | 18.3 | 954.1 | 18.3 | 386.3 | 24.6 | 1,522.9 | 25.4 | 352.2 | 22.6 | 1,395.4 | 24.0 | 283.0 | 23.1 | 1,081.0 | 24.3 | 295.6 | 19.1 | 1,127.5 | 20.6 |
| Giza 181 | | | | | 1.3 | 0.1 | 0.5 | 0.0 | 0.2 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 0.1 | 7.6 | 0.1 |
| Sakha 101 | 484.6 | 36.2 | 2,021.1 | 38.7 | 387.1 | 24.7 | 1,583.9 | 26.4 | 222.9 | 14.3 | 902.6 | 15.5 | 42.7 | 3.5 | 174.5 | 3.9 | | | | |
| Sakha 102 | 163.0 | 12.2 | 688.1 | 13.2 | 216.3 | 13.8 | 851.7 | 14.2 | 222.8 | 14.3 | 855.3 | 14.7 | 35.3 | 2.9 | 132.0 | 3.0 | | | | |
| Others | 25.0 | 1.9 | 88.3 | 1.7 | 25.5 | 1.6 | 92.3 | 1.5 | 31.7 | 2.0 | 100.2 | 1.7 | 0.1 | 0.0 | 1.0 | 0.0 | 5.9 | 0.4 | 19.5 | 0.4 |
| Filipino (IR28) | | | | | | | | | | | | | 0.2 | 0.0 | 1.0 | 0.0 | 0.7 | 0.0 | 2.9 | 0.1 |
| Total | 1,340.3 | 100.0 | 5,226.7 | 100.0 | 1,568.9 | 100.0 | 6,000.5 | 100.0 | 1,559.1 | 100.0 | 5,816.2 | 100.0 | 1,224.9 | 100.0 | 4,450.7 | 100.0 | 1,549.9 | 100.0 | 5,480.0 | 100.0 |

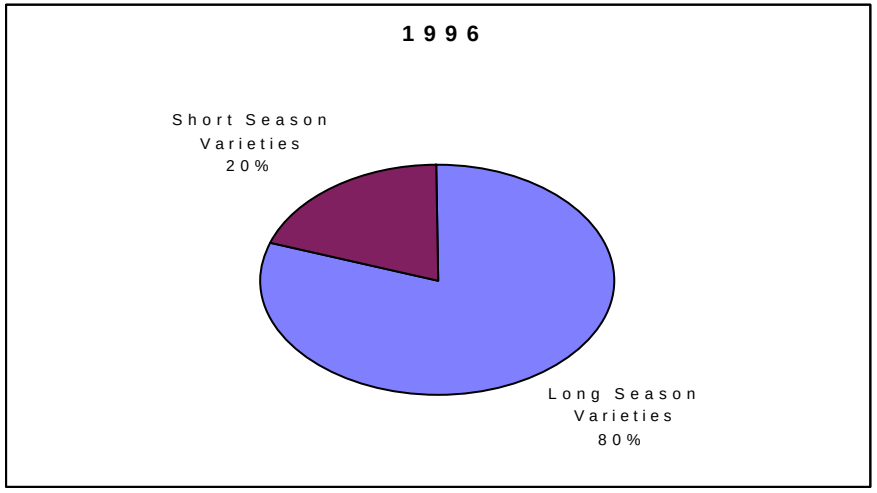
***Sources :*** **1) MALR, Agricultural Economics (annual statistical report), 1995 to 1999. Starting in 1997, the MALR issued two reports, one for winter crops and the other for summer and *Nili* crops.**

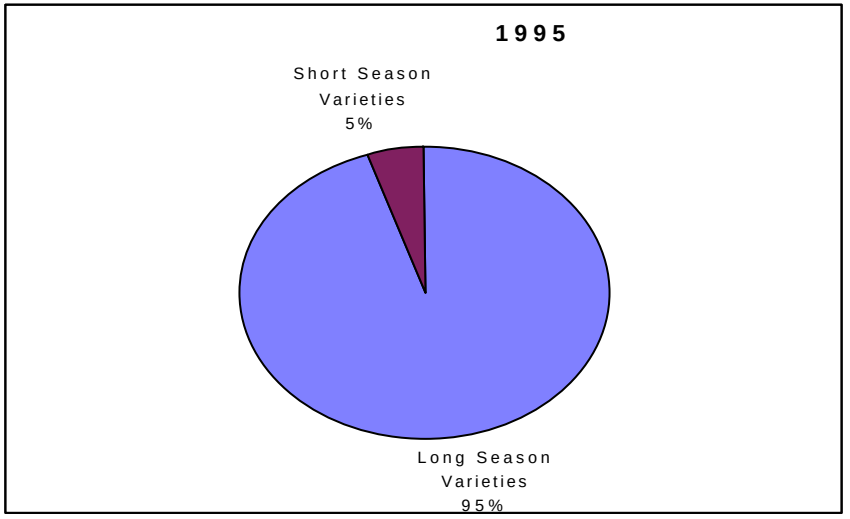
**2) MALR/CAAE data were Cross-checked with MALR/ARC, National Campaign for Rice, 1996 to 2000, but some discrepancies were found.**

***Notes :*** **Sakha 101/102 was introduced in 1997. Area and production for this variety are included in "Others" for 1997 only. For 1998 estimates appear separately for each new variety.**


2000
Long Season Varieties 17%
Short Season Varieties 83%


1999
Long Season Varieties 28%
Short Season Varieties 72%


1996
Short Season Varieties 20%
Long Season Varieties 80%


1995
Short Season Varieties 5%
Long Season Varieties 95%

## Table 3: Area Planted to Summer Crops in the Seven Major Rice-Producing Governorates

(Feddans)

| Years | 1990 | % | 1991 | % | 1992 | % | 1993 | % | 1994 | % | 1995 | % | 1996 | % | 1997 | % | 1998 | % | 1999 | % | 2000 | % | 2001 4 | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Crops** | | | | | | | | | | | | | | | | | | | | | | | | |
| Rice | 1,020,578 | 36.1 | 1,080,401 | 37.4 | 1,188,890 | 40.8 | 1,249,067 | 42.6 | 1,327,423 | 44.4 | 1,352,720 | 44.3 | 1,354,290 | 42.4 | 1,481,963 | 48.1 | 1,188,381 | 41.7 | 1,476,985 | 49.7 | 1,517,573 | 51.9 | 1,299,939 | 43.3 |
| Cotton | 680,084 | 24.1 | 597,811 | 20.7 | 594,260 | 20.4 | 642,030 | 21.9 | 547,609 | 18.3 | 532,519 | 17.5 | 681,662 | 21.3 | 605,737 | 19.6 | 589,090 | 20.6 | 545,089 | 18.3 | 386,980 | 13.2 | 550,164 | 18.3 |
| White Maize | 685,735 | 24.3 | 753,911 | 26.1 | 691,383 | 23.7 | 646,047 | 22.0 | 700,295 | 23.4 | 711,609 | 23.3 | 684,372 | 21.4 | 561,463 | 18.2 | 661,729 | 23.2 | 654,450 | 22.0 | 548,645 | 18.8 | 584,517 | 19.5 |
| Yellow Maize | 0 | 0.0 | 0 | 0.0 | 50 | 0.0 | 391 | 0.0 | 6,720 | 0.2 | 15,270 | 0.5 | 31,387 | 1.0 | 18,029 | 0.6 | 13,248 | 0.5 | 13,248 | 0.4 | 33,653 | 1.2 | 8,780 | 0.3 |
| Subtotal: Major Field Crops | 2,386,397 | 84.4 | 2,432,123 | 84.2 | 2,474,583 | 85.0 | 2,537,535 | 86.6 | 2,582,047 | 86.4 | 2,612,118 | 85.6 | 2,751,711 | 86.1 | 2,667,192 | 86.5 | 2,452,448 | 86.0 | 2,689,772 | 90.5 | 2,486,851 | 85.0 | 2,443,400 | 83.6 |
| Sorghum | 32,108 | 1.1 | 41,354 | 1.4 | 48,219 | 1.7 | 39,178 | 1.3 | 44,885 | 1.5 | 46,350 | 1.5 | 46,106 | 1.4 | 55,603 | 1.8 | 71,631 | 2.5 | 72,439 | 2.5 | 71,657 | 2.5 | 29,934 | 1.0 |
| Peanuts | 8,079 | 0.3 | 7,303 | 0.3 | 7,078 | 0.2 | 8,286 | 0.3 | 8,442 | 0.3 | 9,620 | 0.3 | 9,434 | 0.3 | 6,792 | 0.2 | 10,531 | 0.4 | 13,988 | 0.5 | 12,637 | 0.4 | 15,865 | 0.5 |
| Sesame | 2,817 | 0.1 | 4,547 | 0.2 | 5,618 | 0.2 | 4,842 | 0.2 | 5,609 | 0.2 | 6,140 | 0.2 | 7,652 | 0.2 | 5,841 | 0.2 | 3,656 | 0.1 | 6,933 | 0.2 | 12,472 | 0.4 | 7,081 | 0.2 |
| Soybeans | 16,928 | 0.6 | 16,497 | 0.6 | 8,804 | 0.3 | 4,308 | 0.1 | 4,901 | 0.2 | 2,764 | 0.1 | 951 | 0.03 | 359 | 0.01 | 279 | 0.01 | 188 | 0.01 | 225 | 0.01 | 378 | 0.0 |
| Sunflower | 23,232 | 0.8 | 28,318 | 1.0 | 36,984 | 1.3 | 35,535 | 1.2 | 24,191 | 0.8 | 34,284 | 1.1 | 27,882 | 0.9 | 14,328 | 0.5 | 11,008 | 0.4 | 16,322 | 0.6 | 12,979 | 0.4 | 17,053 | 0.6 |
| Subtotal: Sorghum & Oilseeds | 83,164 | 2.9 | 98,019 | 3.4 | 106,703 | 3.7 | 92,149 | 3.1 | 88,028 | 2.9 | 99,158 | 3.3 | 92,025 | 2.9 | 82,923 | 2.7 | 97,105 | 3.4 | 109,870 | 3.9 | 109,970 | 3.8 | 70,311 | 2.3 |
| Onions | 1,167 | 0.0 | 1,614 | 0.1 | 3,623 | 0.1 | 1,301 | 0.0 | 1,225 | 0.0 | 1,600 | 0.1 | 3,500 | 0.1 | 3,358 | 0.1 | 2,313 | 0.1 | 3,668 | 0.1 | 2,907 | 0.1 | 4,506 | 0.2 |
| Potatoes | 39,240 | 1.4 | 44,481 | 1.5 | 47,484 | 1.6 | 27,187 | 0.9 | 26,930 | 0.9 | 43,200 | 1.4 | 61,236 | 1.9 | 35,387 | 1.1 | 35,267 | 1.2 | 36,585 | 1.3 | 33,839 | 1.2 | 36,113 | 1.2 |
| Tomatoes | 66,238 | 2.3 | 60,216 | 2.1 | 69,255 | 2.4 | 46,096 | 1.6 | 58,509 | 2.0 | 56,091 | 1.8 | 55,501 | 1.7 | 55,087 | 1.8 | 52,724 | 1.8 | 55,357 | 1.9 | 52,765 | 1.8 | 54,295 | 1.8 |
| Subtotal: Tubers & Tomatoes | 106,645 | 3.8 | 106,311 | 3.7 | 120,362 | 4.1 | 74,584 | 2.5 | 86,664 | 2.9 | 100,891 | 3.3 | 120,237 | 3.8 | 93,832 | 3.0 | 90,304 | 3.2 | 95,610 | 3.4 | 89,511 | 3.1 | 94,914 | 3.2 |
| Darawa (maize grown as fodder) | 49,856 | 1.8 | 50,323 | 1.7 | 55,559 | 1.9 | 66,045 | 2.3 | 39,726 | 1.3 | 58,040 | 1.9 | 50,028 | 1.6 | 42,260 | 1.4 | 75,348 | 2.6 | 55,879 | 2.0 | 63,440 | 2.2 | 88,315 | 2.9 |
| Aromatic and Medicinal Plants | 7,635 | 0.3 | 6,937 | 0.2 | 1,186 | 0.0 | 1,800 | 0.1 | 1,960 | 0.1 | 3,223 | 0.1 | 3,283 | 0.1 | 3,763 | 0.1 | 6,080 | 0.2 | 4,375 | 0.2 | 2,750 | 0.1 | 4,510 | 0.2 |
| Other Summer Crops | 193,428 | 6.8 | 194,293 | 6.7 | 153,625 | 5.3 | 158,483 | 5.4 | 190,455 | 6.4 | 177,167 | 5.8 | 179,927 | 5.6 | 193,634 | 6.3 | 131,830 | 4.6 | 17,608 | 0.6 | 171,941 | 5.9 | 298,550 | 10.0 |
| Total Summer Crops | 2,827,125 | 100.0 | 2,888,006 | 100.0 | 2,912,018 | 100.0 | 2,930,596 | 100.0 | 2,988,880 | 100.0 | 3,050,597 | 100.0 | 3,197,211 | 100.0 | 3,083,604 | 100.0 | 2,853,115 | 100.0 | 2,973,115 | 100.0 | 2,924,463 | 100.0 | 3,000,000 | 100.0 |

**Source: MALR/CAAE**

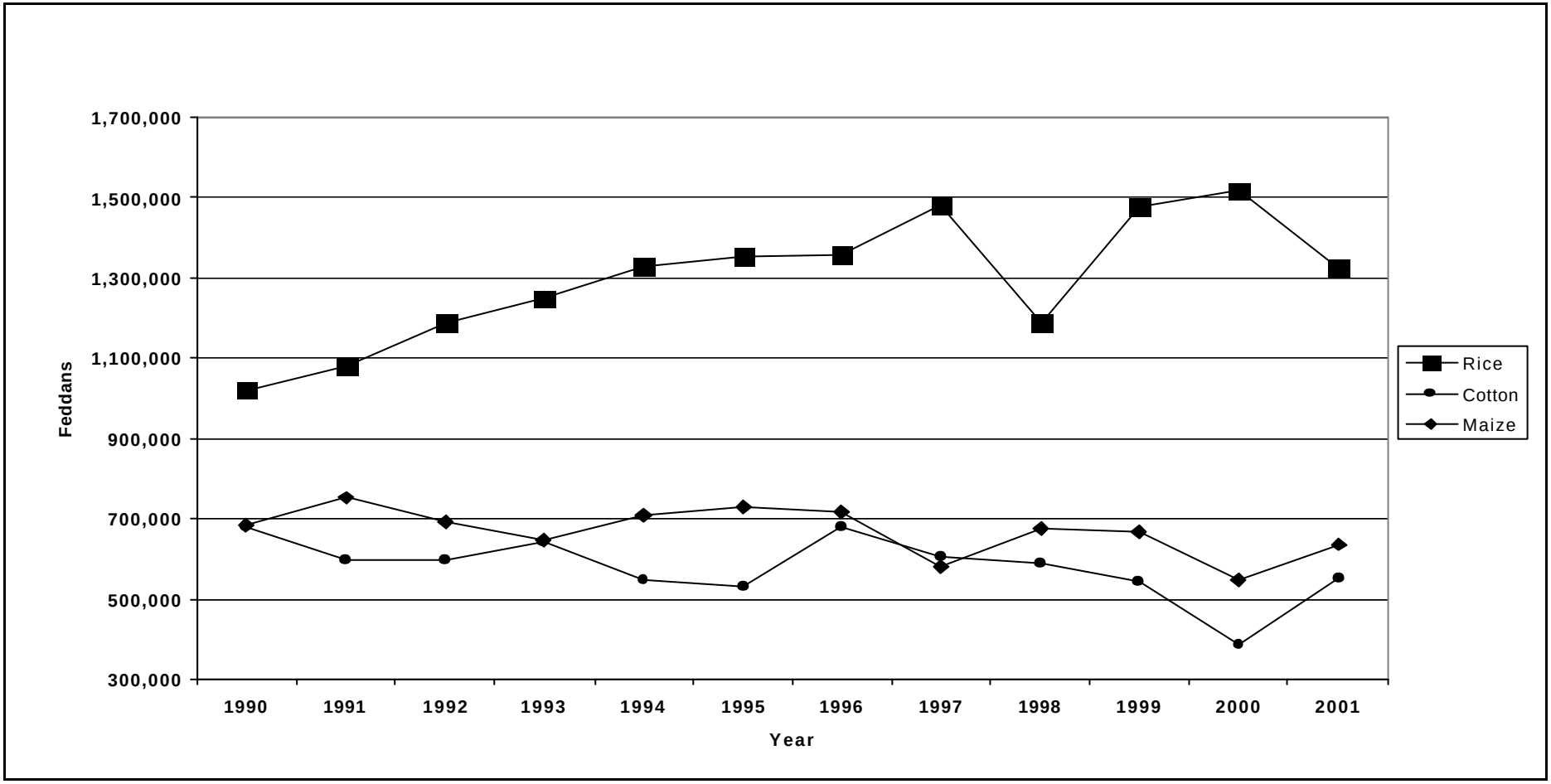
**Notes: 1) Note that yellow maize is reported as a separate category but considered as maize and sub-totaled with rice and cotton under Major Field Crops.**

**2) Darawa is maize cultivated in close stands that is intended to be used strictly as fodder for livestock. (There is no intention to harvest the grain).**

**3) Other summer crops include mainly vegetables, such as various melons and squashes, green beans and cucumbers.**

**4) 2001 figures for white maize, cotton and rice are estimated figures. The 3.0 million feddan area estimate for total summer crops is by assumption.**

**Figure 2: Area Cropped to Rice, Cotton, Maize in the Rice Producing Governorates, 1990 - 2001**



## Table 4 : Paddy & Rice Supply and Use Estimates, 1990/91-2001/02

| Year | Paddy | | | | | | | Milled Rice | | | | | | | | | | | | Estim. Year End Stocks '000 mt Paddy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Paddy Area | MALR Estim. Yield | MVE Yield Adjustmt. | Paddy Prod. | Seed Requirmt. | Estim. Paddy Losses | Paddy Balance | Milled Rice Equivalent | Exports | Imports | Net Exports | Quantity Avail. for Cons. | Adj. Quan. | | Estim. Rice Cons. | Cons. Per Capita | Opening Stocks (milled) | Estim. Year End Stocks | Calculated Change in Stocks | |
| | | | | | | | | | | | | | Avail. for Cons. | Resident Pop. | | | | | | |
| | '000 fd | mt/fd | mt/fd | '000 mt | '000 mt | '000 mt | '000 mt | '000 mt | '000 mt | '000 mt | '000 mt | '000 mt | '000 mt | mill. | '000 mt | kg. | '000 mt | '000 mt | '000 mt | |
| 1990/91 | 1037 | 3.01 | 2.71 | 2809.2 | 55.4 | 280.9 | 2472.9 | 1607.4 | 136.0 | 2.38 | 75.7 | 1531.7 | 1455.1 | 53.50 | 1476.6 | 27.6 | 25.0 | 3.5 | -79.9 | 5.4 |
| 1991/92 | 1100 | 3.32 | 2.99 | 3286.8 | 61.2 | 0.3 | 2896.9 | 1883.0 | 176.4 | 3.80 | 172.7 | 1710.3 | 1624.8 | 54.61 | 1556.5 | 28.5 | 3.5 | 71.8 | 0.8 | 110.4 |
| 1992/93 | 1215 | 3.40 | 3.06 | 3717.9 | 64.6 | 371.8 | 3281.5 | 2133.0 | 133.2 | 0.06 | 133.1 | 1999.8 | 1899.8 | 55.75 | 1644.7 | 29.5 | 71.8 | 326.9 | 267.8 | 502.9 |
| 1993/94 | 1282 | 3.43 | 3.09 | 3957.5 | 69.5 | 395.8 | 3492.3 | 2270.0 | 251.7 | 0.09 | 251.6 | 2018.4 | 1917.5 | 56.92 | 1741.6 | 30.6 | 326.9 | 502.8 | 282.5 | 773.5 |
| 1994/95 | 1378 | 3.52 | 3.17 | 4365.5 | 70.6 | 436.6 | 3858.4 | 2508.0 | 127.8 | 0.34 | 127.5 | 2380.5 | 2261.4 | 58.10 | 1847.6 | 31.8 | 502.8 | 916.6 | 617.4 | 1410.1 |
| 1995/96 | 1400 | 3.42 | 3.08 | 4309.2 | 70.8 | 430.9 | 3807.5 | 2474.9 | 355.2 | 0.80 | 354.4 | 2120.4 | 2014.4 | 59.31 | 1965.6 | 33.1 | 916.6 | 965.4 | -43.6 | 1485.2 |
| 1996/97 | 1405 | 3.48 | 3.13 | 4400.5 | 78.5 | 440.0 | 3881.9 | 2523.3 | 166.2 | 0.31 | 165.9 | 2357.4 | 2239.5 | 60.44 | 2142.0 | 35.4 | 965.4 | 1062.9 | -2.5 | 1635.2 |
| 1997/98 | 1557 | 3.52 | 3.17 | 4932.6 | 61.7 | 493.3 | 4377.6 | 2845.4 | 409.2 | 0.69 | 408.5 | 2436.9 | 2315.1 | 61.59 | 2321.9 | 37.7 | 1062.9 | 1056.1 | -6.8 | 1624.7 |
| 1998/99 | 1225 | 3.63 | 2.86 | 3500.0 | 89.7 | 350.0 | 3060.3 | 1989.2 | 308.2 | 38.00 | 270.2 | 1719.0 | 1633.0 | 62.76 | 2516.6 | 40.1 | 1056.1 | 172.5 | -883.6 | 265.4 |
| 1999/00 | 1780 | 3.73 | 3.36 | 5975.5 | 101.7 | 597.5 | 5276.3 | 3429.6 | 337.9 | 1.00 | 336.9 | 3092.7 | 2938.0 | 63.95 | 2717.9 | 42.5 | 172.5 | 392.6 | 220.1 | 604.0 |
| 2000/01 | 2017 | 3.83 | 3.45 | 6952.6 | 65.8 | 695.3 | 6191.5 | 4024.5 | 600.0 | 1.00 | 599.0 | 3425.5 | 3254.2 | 65.17 | 2932.5 | 45.0 | 392.6 | 714.4 | 321.7 | 1099.0 |
| 2001/02* | 1306 | 3.83 | 3.45 | 4501.8 | 75.6 | 450.2 | 3976.0 | 2584.4 | 325.0 | 1.00 | 324.0 | 2260.4 | 2147.4 | 66.40 | 2822.2 | 42.5 | 714.4 | 39.6 | -674.8 | 60.9 |

**Sources: MALR, MTS, CAPMAS, IFPRI Household Survey, Univ. of Arkansas Rice Study (1995), and MVE estimates.**

*** 2001/02 figures are MVE forecasts. Exports are could end up being lower; they were 272,000 mt as of early June 2002.**

**Notes: 1) Data are reported by production year, but the marketing year runs from 15 September of the production year to 15 September or 1 October of the following calendar year.**

**2) MALR production estimates are assumed to be high. They are adjusted downward by using a 10% yield correction factor. In other words, national average yields are assumed to be 90% of the reported MALR figures. The exception is 1998/99, where the yield is calculated based on an estimated crop of 3.5 million mt (reflecting the private trade's best estimates of the size of the crop).**

**3) Post-harvest losses of paddy are assumed to be 10%. Some of these "losses" to human consumption can be fed to livestock. Netting out losses yields the paddy balance from the current rice crop (does not include earlier year carryover).**

**4) Seed requirements are calculated as 50.4 kg. per feddan (or 120 kg./ha.) * the area planted in the following year. Year 2001/02 area planted is assumed to 1.3 million feddans.**

**5) The average (milling rate) of conversion of paddy into milled rice is assumed to be 65%. Public mills and private commercial mills sometimes obtain higher conversion rates (67-70%), but small village mills often achieve lower rates than 65%.**

**6) Calendar year, rather than market year, statistics are used for imports of rice. Given the generally negligible import volumes, this does not pose a problem. Imports for 1999/00 and 2000/01 are assumed to be 1,000 mt.**

**7) Estimated quantity available for total consumption is calculated as a residual for the current year (paddy balance less net exports). This estimate is then adjusted downward for 5% losses in bagging, handling & transport of milled rice.**

**8) Population figures are for the resident population only, based on GOE censuses at ten-year intervals (1986, 1996). The growth rate per year was 2.085% from 1986 to 1996, and 1.9% since 1996.**

**9) Estimated consumption figures are from MALR Food Balance Sheets to 1994/95, calculated for 1997/98 (as the IFPRI/EIHS per capita consumption estimate * population), and interpolated for 1995/96 and 1996/97. Consumption is adjusted upward for 1998/99 to 2000/01, though assumed to fall in 2001/02 as MVE forecasts tighter supplies and higher prices.**

**10) Per capita consumption is estimated from MALR Food Balance Sheets to 1994/95, from the IFPRI EIHS for 1997/98, interpolated for 1995/96 and 1996/97, and extrapolated for 1998/99 to 2000/01.**

**11) Milled rice stocks at the end of the marketing year are calculated as a residual. We assume that opening stocks in September 1990 were 25,000 mt of milled rice, equivalent to 33,000 mt of paddy. End stocks equal opening stocks + quantity available for consumption - estimated consumption.**

**12) Milled rice equivalent stock changes are calculated from the table. Most stocks are stored as paddy, not milled rice, however, so the paddy equivalent stocks can be estimated as the milled rice equivalent stocks divided by 0.65.**

## Table 5 : Paddy Producer Prices, 1985-2001

| Governorate | Main Producing Regions | | | | | | | | Other Regions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Beheira | Gharbia | Kafr El-Sheikh | Dakahlia | Damietta | Sharkia | Fayoum | Average | Menoufia | Qalubia | New Valley | Nobaria | Port Said | Ismailia | Alexandria |
| 1985 | 240 | 218 | 202 | 193 | 211 | 214 | 212 | 212 | | | | | | | |
| 1986 | 271 | 234 | 245 | 229 | 254 | 255 | 247 | 247 | | | | | | | |
| 1987 | 207 | 208 | 206 | 198 | 202 | 217 | 206 | 206 | | | | | | | |
| 1988 | 267 | 230 | 261 | 243 | 265 | 266 | 257 | 257 | | | | | | | |
| 1989 | 363 | 348 | 369 | 349 | 360 | 385 | 362 | 362 | | | | | | | |
| 1990 | 367 | 367 | 341 | 367 | 380 | 400 | 367 | 367 | 400 | 407 | | | | 387 | |
| 1991 | 435 | 435 | 432 | 437 | 438 | 439 | 437 | 435 | 439 | 422 | 435 | | 437 | 438 | |
| 1992 | 450 | 450 | 442 | 455 | 457 | 458 | 452 | 451 | 440 | 445 | 450 | | 454 | | 450 |
| 1993 | 500 | 500 | 500 | 495 | 512 | 514 | 504 | 505 | 496 | 497 | 503 | | 512 | 513 | 500 |
| 1994 | 600 | 600 | 580 | 615 | 620 | 625 | 606 | 605 | 585 | 590 | 602 | | 620 | 623 | 600 |
| 1995 | 680 | 690 | 632 | 630 | 695 | 680 | 656 | 655 | 660 | 650 | 690 | 700 | 710 | 700 | 700 |
| 1996 | 730 | 720 | 680 | 678 | 725 | 730 | 703 | 709 | | 705 | 740 | 750 | 760 | 750 | 750 |
| 1997 | 745 | 733 | 695 | 693 | 740 | 745 | 718 | 724 | 755 | 715 | 750 | 756 | 770 | 760 | 765 |
| 1998 | 753 | 742 | 703 | 700 | 750 | 755 | 715 | 731 | | 723 | 760 | 765 | 780 | 770 | 773 |
| 1999 | 758 | 747 | 708 | 706 | 755 | 760 | 720 | 736 | | 728 | 766 | 770 | 785 | 774 | 778 |
| 2000 | 580 | 590 | 590 | 575 | 570 | 575 | 600 | 583 | 0 | 750 | 600 | 650 | 550 | 550 | 600 |
| 2001 | 590 | 600 | 595 | 587 | 583 | 589 | 610 | 593 | 0 | 750 | 612 | 655 | 568 | 570 | 610 |

**Source : MALR/CAAES**

## Table 6: Into-Mill Wholesale Paddy Prices, by Variety, October 1998-June 2002

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ***1999/2000 Marketing Year*** | | | | | | | | | | |
| **Sep-99** | | | **680-700** | **149** | **630-650** | **134** | **620-630** | **134** | **600-620** | **132** |
| **Oct-99** | **670-700** | **139** | **620-640** | **136** | **620-640** | **132** | **600-620** | **131** | **620-640** | **136** |
| **Nov-99** | **650** | **132** | **600-620** | **132** | **600-620** | **128** | **570** | **123** | **620** | **134** |
| **Dec-99** | **620-630** | **127** | **560-580** | **123** | **560-580** | **119** | **570** | **123** | **560** | **121** |
| **Jan-00** | **750** | **152** | **700-710** | **152** | **660-670** | **139** | **640-650** | **139** | | |
| **Feb-00** | **720-750** | **149** | **690** | **149** | **650-680** | **139** | **670** | **144** | | |
| **Mar-00** | **680-710** | **142** | **680** | **147** | **630** | **132** | **660-670** | **143** | | |
| **Apr-00** | **700** | **142** | **680** | **147** | **600-630** | **129** | **670** | **144** | | |
| **May-00** | **700** | **142** | **680-690** | **148** | **630-640** | **133** | **650** | **140** | | |
| **Jun-00** | **690-710** | **142** | **680-700** | **149** | **620-650** | **133** | **490-530** | **110** | **410-440** | **92** |
| **Jul-00** | **500-540** | **106** | **500-540** | **112** | **420-450** | **91** | **500** | **108** | **410** | **89** |
| **Aug-00** | **530** | **108** | **520** | **112** | **400-410** | **86** | **420-440** | **92** | **400** | **86** |
| ***2000/01 Marketing Year*** | | | | | | | | | | |
| **Sep-00** | | | **440-460** | **97** | **400-410** | **85** | **430-460** | **96** | **410** | **89** |
| **Oct-00** | **460-480** | **95** | **430-450** | **95** | **380-420** | **84** | **430-450** | **95** | **410** | **89** |
| **Nov-00** | **470-500** | **98** | **460-480** | **102** | **390-430** | **86** | **440-470** | **98** | **420** | **91** |
| **Dec-00** | **460-490** | **96** | **410-460** | **94** | **340-410** | **79** | **420-465** | **95** | **410-465** | **95** |
| **Jan-01** | **460-480** | **95** | **420-470** | **96** | **390-410** | **84** | **440-470** | **98** | **430-470** | **97** |
| **Feb-01** | **470-520** | **90** | **410-465** | **95** | **360-420** | **82** | **420-470** | **96** | **420-470** | **96** |
| **Mar-01** | **470-500** | **98** | **410-480** | **96** | **360-420** | **82** | **425-485** | **98** | **450-485** | **101** |
| **Apr-01** | **480** | **97** | **420-475** | **97** | **375-425** | **84** | **420-450** | **94** | **450** | **97** |
| **May-01** | **460** | **93** | **450-460** | **98** | **380-390** | **81** | **450-460** | **98** | **420-430** | **92** |
| **Jun-01** | **450** | **91** | **460-465** | **100** | **420-425** | **89** | **460-465** | **100** | **460-465** | **100** |
| **Jul-01** | **530** | **108** | **530-570** | **119** | **520-545** | **116** | **530-570** | **118** | **540-570** | **120** |
| **Aug-01** | **460** | **93** | **470-490** | **104** | **390-410** | **84** | **470-490** | **103** | **440-450** | **96** |

| *2001/02 Marketing Year* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sep-01** | | | **490-500** | **107** | **400-430** | **87** | **490-505** | **107** | **450-460** | **98** |
| **Oct-01** | **640-680** | **134** | **490-530** | **110** | **430-500** | **97** | **500-530** | **111** | **470-500** | **105** |
| **Nov-01** | **720-750** | **149** | **570-650** | **132** | **490-600** | **114** | **570-650** | **131** | **540-600** | **123** |
| **Dec-01** | **831** | **169** | **782** | **169** | **850** | **178** | **794** | **171** | | |
| **Jan-02** | **927** | **188** | **850** | **184** | **893** | **187** | **884** | **190** | **775** | **168** |
| **Feb-02** | **957** | **194** | **931** | **201** | **937** | **196** | **907** | **195** | **825** | **178** |
| **Mar-02** | | | **918** | **199** | **860** | **180** | **890** | **191** | **929** | **201** |
| **Apr-02** | **920-940** | **189** | **860-880** | **188** | **830-850** | **176** | **880-910** | **192** | **820-830** | **178** |
| **May-02** | **910-920** | **186** | **850-860** | **185** | **820-830** | **173** | **860-880** | **187** | **810-820** | **176** |
| **Jun-02** | **890-900** | **182** | **840-850** | **183** | **800-810** | **169** | **840-860** | **183** | **790-800** | **172** |

**Sources: 1) Cereals Industry Chamber, Rice Branch monthly meeting notes.**

**2) MVE notes from interviews with rice millers and exporters.**

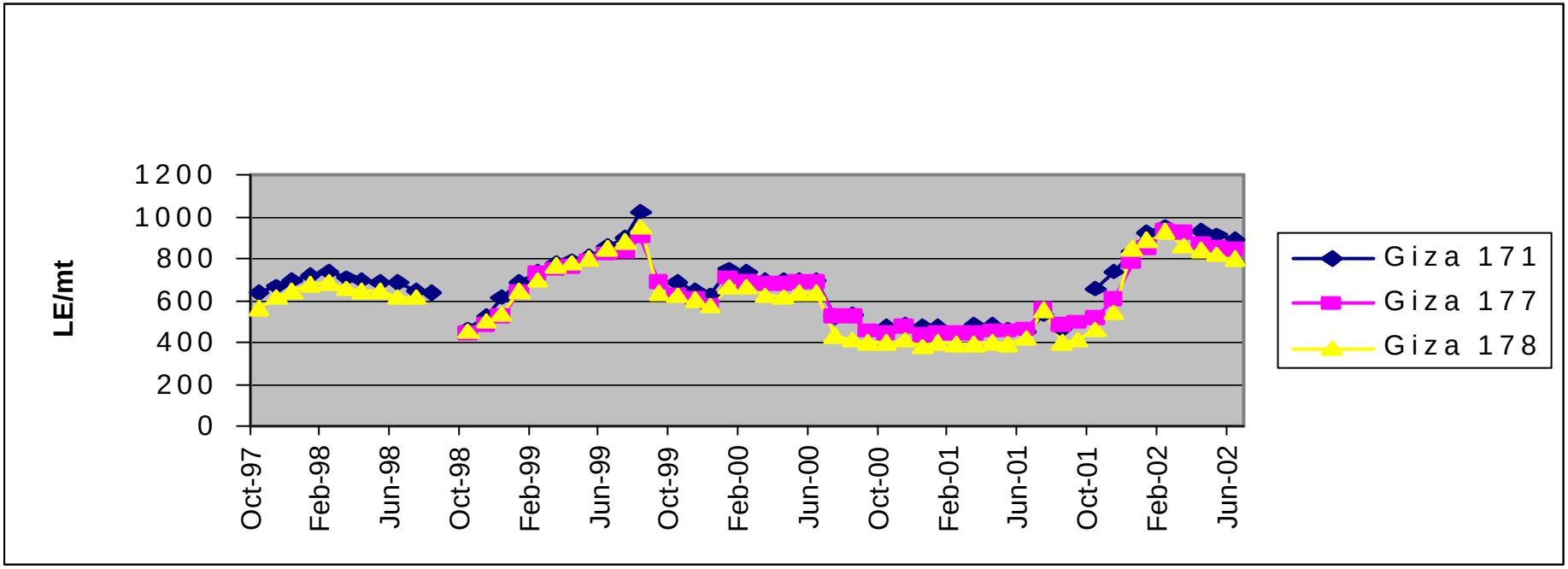
**3) Prices for December 2001 through March 2002 were obtained from a survey of rice traders, conducted in March-April 2002.**

**Notes: The indexes are calculated by taking the simple mean of the range for each month and then comparing this to the base month, Oct. 1998.**

**The prices reported are indicative and not a substitute for prices obtained from a scientific and representative sample.**

**Since Giza 171 is harvested in October, there are no price quotes for September. There are no quotes for Sakha 102 for Jan.-May 2000.**

**Figure 3: Into-Mill Wholesale Prices for Three Egyptian Varieties, October 1997-June 2002**



## Table 7: Minimum and Maximum Wholesale and Retail Rice Prices for 26 Governorates

| Month | Cairo | | | | Giza | | | | Alexandria | | | | Qalyoubeya | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wholesale | | Consumer | | Wholesale | | Consumer | | Wholesale | | Consumer | | Wholesale | | Consumer | |
| | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High |
| Jan. 96 | | | | | | | | | | | | | 110 | 115 | 130 | 130 |
| Feb. 96 | | | | | | | | | | | | | 110 | 115 | 130 | 135 |
| Mar. 96 | | | | | | | | | | | | | 110 | 110 | 130 | 130 |
| Apr. 96 | | | | | | | | | | | | | 110 | 115 | 130 | 130 |
| May 96 | | | | | | | | | 110 | 115 | 135 | 135 | 110 | 110 | 135 | 135 |
| June 96 | 115 | 115 | 120 | 160 | | | | | | | | | 120 | 125 | 140 | 140 |
| July 96 | 120 | 120 | 135 | 180 | | | | | | | | | 130 | 130 | 150 | 150 |
| Aug. 96 | 115 | 140 | 140 | 180 | | | | | 130 | 130 | 150 | 150 | | | | |
| Sep. 96 | 115 | 140 | 140 | 180 | | | | | | | | | 130 | 130 | 150 | 150 |
| Oct. 96 | 110 | 140 | 140 | 180 | 125 | 125 | 150 | 150 | | | | | 130 | 130 | 150 | 150 |
| Nov. 96 | 110 | 140 | 140 | 180 | 125 | 125 | 140 | 160 | 110 | 120 | 130 | 140 | 125 | 125 | 140 | 140 |
| Dec. 96 | 110 | 150 | 140 | 180 | 130 | 130 | 140 | 140 | 110 | 120 | 130 | 140 | 125 | 125 | 140 | 140 |
| Jan. 97 | 110 | 150 | 140 | 180 | 125 | 135 | 140 | 160 | 110 | 120 | 130 | 140 | 125 | 125 | 140 | 140 |
| Feb. 97 | 110 | 150 | 140 | 180 | 130 | 140 | 140 | 150 | 110 | 130 | 130 | 160 | 125 | 125 | 140 | 140 |
| Mar. 97 | 120 | 160 | 140 | 180 | 125 | 125 | 140 | 170 | 110 | 130 | 130 | 160 | 125 | 125 | 140 | 140 |
| Apr. 97 | 120 | 130 | 140 | 180 | | | 150 | 150 | 110 | 110 | 130 | 160 | 125 | 125 | 130 | 140 |
| May 97 | 120 | 120 | 140 | 180 | | | 150 | 150 | 110 | 115 | 130 | 175 | 125 | 125 | 140 | 140 |
| June 97 | 120 | 140 | 140 | 180 | | | 150 | 150 | 120 | 140 | 140 | 160 | 125 | 125 | 140 | 140 |
| July 97 | 120 | 160 | 140 | 180 | | | | | 110 | 120 | 130 | 140 | 125 | 125 | 140 | 140 |
| Aug. 97 | 120 | 120 | 140 | 180 | | | | | 110 | 135 | 125 | 150 | 130 | 130 | 140 | 140 |
| Sep. 97 | 120 | 160 | 140 | 180 | | | | | 110 | 135 | 125 | 150 | 110 | 110 | 140 | 140 |
| Oct. 97 | 120 | 160 | 140 | 180 | | | | | 100 | 130 | 110 | 140 | 110 | 110 | 140 | 140 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nov. 97** | **120** | **160** | **140** | **180** | | | | | **110** | **130** | **130** | **140** | **100** | **100** | **120** | **120** |
| **Dec. 97** | **120** | **160** | **140** | **180** | **130** | **140** | **150** | **170** | **100** | **130** | **110** | **140** | **110** | **110** | **130** | **130** |
| **Jan. 98** | **120** | **160** | **140** | **180** | | | | | **100** | **130** | **110** | **140** | **110** | **110** | **125** | **125** |
| **Feb. 98** | **120** | **160** | **140** | **180** | | | | | **100** | **130** | **110** | **140** | **120** | **120** | **140** | **140** |
| **Mar. 98** | **110** | **160** | **130** | **180** | | | | | **100** | **110** | **125** | **140** | **125** | **125** | **140** | **140** |
| **Apr. 98** | **110** | **130** | **120** | **140** | **110** | **110** | **130** | **170** | **100** | **110** | **125** | **140** | **110** | **110** | **140** | **140** |
| **May 98** | **110** | **160** | **130** | **170** | | | **130** | **170** | **90** | **100** | **110** | **130** | **105** | **105** | **120** | **120** |
| **June 98** | **110** | **160** | **130** | **170** | | | **160** | **160** | **90** | **115** | **110** | **130** | **110** | **110** | **130** | **130** |
| **July 98** | **100** | **100** | **110** | **170** | | | **160** | **160** | **90** | **100** | **110** | **130** | **110** | **110** | **130** | **130** |
| **Aug. 98** | **100** | **150** | **110** | **170** | | | **160** | **160** | **90** | **100** | **100** | **130** | **110** | **110** | **130** | **130** |
| **Sep. 98** | **100** | **150** | **110** | **170** | | | **160** | **160** | **90** | **100** | **100** | **130** | **100** | **100** | **110** | **110** |
| **Oct. 98** | | | | | | | | | **90** | **120** | **100** | **130** | | | | |
| **Nov. 98** | **80** | **130** | **100** | **140** | | | **100** | **100** | **120** | **120** | **140** | **140** | **90** | **90** | **110** | **110** |
| **Des. 98** | **80** | **110** | **100** | **135** | | | **100** | **150** | **80** | **110** | **100** | **130** | **90** | **90** | **110** | **110** |
| **Jan. 99** | **80** | **110** | **100** | **135** | | | **100** | **150** | **100** | **115** | **120** | **130** | **90** | **90** | **110** | **110** |
| **Feb. 99** | **80** | **110** | **100** | **135** | | | **100** | **150** | **120** | **140** | **150** | **175** | **110** | **110** | **130** | **130** |
| **Mar. 99** | **90** | **130** | **110** | **150** | | | **100** | **150** | **100** | **115** | **120** | **130** | **115** | **115** | **130** | **130** |
| **Apr. 99** | **100** | **140** | **120** | **170** | | | **100** | **150** | **100** | **115** | **120** | **130** | **120** | **120** | **130** | **130** |
| **May 99** | **120** | **160** | **130** | **170** | | | **130** | **160** | **110** | **155** | **160** | **170** | **150** | **150** | **170** | **170** |
| **June 99** | **135** | **160** | **150** | **180** | | | **130** | **160** | **120** | **155** | **150** | **160** | **145** | **145** | **160** | **160** |
| **July 99** | **140** | **165** | **150** | **180** | | | **150** | **170** | **100** | **145** | **160** | **170** | **150** | **150** | **160** | **160** |
| **Aug. 99** | | | | | | | | | | | | | | | | |
| **Sep. 99** | **130** | | **145** | | | | **110** | **190** | **90** | **110** | **120** | **140** | **110** | **110** | **120** | **120** |
| **Oct. 99** | **110** | **125** | **125** | **140** | | | **120** | **120** | **80** | **90** | **110** | **120** | **110** | **110** | **120** | **120** |
| **Nov. 99** | **105** | **115** | **110** | **125** | | | **120** | **125** | **80** | **90** | **120** | **140** | **110** | **110** | **120** | **120** |
| **Dec. 99** | **105** | **115** | **110** | **125** | | | **120** | **125** | **80** | **90** | **120** | **140** | **110** | **110** | **120** | **120** |
| **Jan. 00** | **100** | **110** | **110** | **120** | | | **130** | **130** | **90** | **110** | **110** | **140** | **100** | **100** | **110** | **110** |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Feb. 00** | **100** | **110** | **110** | **120** | | | **110** | **110** | **90** | **110** | **110** | **140** | **100** | **100** | **120** | **120** |
| **Mar. 00** | **100** | **110** | **110** | **120** | | | **125** | **125** | **90** | **110** | **110** | **140** | **110** | **110** | **110** | **110** |
| **Apr. 00** | **100** | **110** | **110** | **120** | | | **125** | **125** | **90** | **110** | **110** | **140** | **100** | **110** | **110** | **110** |
| **May 00** | **100** | **110** | **120** | **130** | | | **125** | **135** | **90** | **110** | **110** | **140** | **100** | **110** | **110** | **110** |
| **June 00** | **100** | **110** | **120** | **140** | | | **125** | **125** | **100** | **110** | **125** | **140** | **110** | **110** | **120** | **120** |
| **July 00** | **100** | **110** | **115** | **125** | | | **120** | **120** | **100** | **110** | **125** | **140** | **100** | **100** | **110** | **110** |
| **Aug. 00** | **100** | **110** | **115** | **125** | | | **120** | **120** | **100** | **110** | **125** | **140** | **80** | **80** | **100** | **100** |
| **Sep. 00** | **90** | **100** | **100** | **110** | | | **120** | **120** | **80** | **100** | **100** | **130** | **85** | **85** | **100** | **100** |
| **Oct. 00** | **70** | **80** | **100** | **110** | | | **120** | **120** | **80** | **100** | **100** | **130** | **80** | **80** | **90** | **90** |
| **Nov. 00** | **90** | **100** | **110** | **120** | | | **110** | **115** | **70** | **80** | **90** | **100** | **80** | **80** | **90** | **90** |
| **Dec. 00** | **90** | **100** | **110** | **120** | | | **100** | **100** | **70** | **80** | **90** | **100** | **75** | **75** | **85** | **85** |
| **Jan. 01** | **80** | **90** | **90** | **110** | | | **100** | **100** | **80** | **90** | **100** | **120** | **90** | **90** | **100** | **100** |
| **Feb. 01** | **90** | **100** | **110** | **120** | | | **100** | **100** | **80** | **90** | **100** | **120** | **90** | **90** | **100** | **100** |
| **Mar. 01** | **80** | **90** | **90** | **100** | | | **105** | **105** | **55** | **80** | **80** | **100** | **90** | **90** | **100** | **100** |
| **Apr. 01** | **70** | **80** | **90** | **100** | | | **105** | **105** | **55** | **80** | **80** | **100** | **90** | **90** | **100** | **100** |
| **May 01** | **80** | **90** | **100** | **120** | | | **100** | **100** | **55** | **80** | **85** | **100** | **80** | **90** | **90** | **90** |
| **June 01** | **100** | **110** | **110** | **130** | | | **100** | **100** | **55** | **80** | **90** | **100** | **80** | **80** | **90** | **90** |
| **July 01** | **80** | **90** | **100** | **120** | | | **100** | **100** | **55** | **80** | **90** | **100** | **90** | **90** | **100** | **100** |
| **Aug. 01** | **80** | **90** | **100** | **120** | | | **100** | **100** | **55** | **80** | **90** | **100** | **90** | **90** | **110** | **110** |
| **Sep. 01** | **80** | **90** | **90** | **100** | | | **100** | **100** | **70** | **90** | **100** | **110** | **100** | **100** | **110** | **100** |
| **Oct. 01** | **80** | **90** | **100** | **110** | | | **110** | **110** | **70** | **90** | **100** | **110** | **80** | **80** | **90** | **90** |
| **Nov. 01** | **110** | **130** | **140** | **160** | | | **110** | **110** | **110** | **120** | **130** | **140** | **100** | **100** | **110** | **110** |
| **Dec. 01** | **110** | **130** | **140** | **160** | | | **130** | **135** | **110** | **120** | **130** | **140** | **125** | **125** | **135** | **135** |
| **Jan. 02** | **110** | **130** | **140** | **160** | | | **130** | **135** | **110** | **120** | **130** | **140** | **125** | **125** | **135** | **135** |
| **Feb. 02** | **120** | **130** | **150** | **160** | | | **130** | **175** | **110** | **120** | **13** | **140** | | **120** | **140** | **140** |
| **Mar. 02** | **120** | **130** | **150** | **160** | | | **150** | | **110** | **130** | **150** | **160** | | **135** | **160** | **160** |
| **Apr. 02** | **120** | **130** | **150** | **160** | | | **150** | | | | | | | **130** | **160** | |
| **May. 02** | **120** | **130** | **150** | **160** | | | | | | | | | | **130** | **160** | |

***Source :*** **MTS. Cereals and Legumes Department.**

## Table 8: Rice Export Volume and Value, 1995/96 to 2001/02

| Year | Using GOEIC Data | | | | Using CAPMAS Data | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | GOEIC | Index | Total Value | Index | CAPMAS | Index | Total Value | Index | Unit Value | Index |
| | mt | % | mill. $ | % | mt | % | mill. $ | % | $/mt | % |
| 1995/96 | 355,230 | | 124.7 | | 324,869 | | 114.1 | | 351 | |
| 1996/97 | 166,163 | 100 | 61.8 | 100 | 166,032 | 100 | 61.8 | 100 | 372 | 100 |
| 1997/98 | 409,118 | 246 | 130.1 | 209 | 350,986 | 211 | 111.6 | 181 | 318 | 85 |
| 1998/99 | 308,221 | 185 | 92.9 | 149 | 356,771 | 215 | 107.5 | 174 | 301 | 80 |
| 1999/00 | 337,916 | 203 | 101.0 | 164 | 328,792 | 198 | 98.3 | 159 | 299 | 81 |
| 2000/01 | 755,434 | 455 | 158.8 | 263 | 741,188 | 446 | 155.8 | 254 | 210 | 57 |
| 2001/02 | 272,278 | 164 | 59.6 | 96 | 216,282 | 130 | 47.3 | 77 | 219 | 59 |

**Sources: The APRP, MVE Unit prepared this table from multiple sources.**

**1) GOEIC reports only export quantities. The unit export values are calculated from CAPMAS data on total export value.**

**2) CAPMAS tabulates export volume and total export value in both LE and U.S. dollars.**

**Notes: 1) Data are reported for market years, October of one year through September of the next.**

**2) The value of exports is based on monthly CAPMAS data. GOEIC export volumes are multiplied by CAPMAS unit values to arrive at total value of exports (under "Using GOEIC Data").**

**3) The value per mt is a calculated unit value, calculated across all types/grades of rice. It is not a consistent time-series for one representative, widely traded rice type, such as camolino grade 2.**

**4) The choice of base year (1996/97) for calculating index values coincides with the beginning of APRP. Use of 1995/96, when exports and export revenues were much higher,as a base year would lower the index values.**

**5) 2001/02 export data are preliminary. The GOEIC volumes are reported through 5 June 2002. CAPMAS trade volume and value are reported through March 2002.**

**Table 9: Egyptian Rice Exports by Country, 1993/94 to 2001/02**

**(metric tons)**

| Country | 1993/94 | 1994/95 | 1995/96 | 1996/97 | 1997/98 | 1998/99 | 1999/00 | 2000/01 | 2001/02 |
|---|---|---|---|---|---|---|---|---|---|
| Turkey | 72,514 | 19,739 | 42,751 | 17,307 | 117,868 | 66,899 | 66,408 | 112,949 | 57,689 |
| Arab 1 | | | | | | | | | |
| Syria | 101,361 | 48,428 | 55,874 | 36,855 | 83,483 | 58,161 | 74,091 | 159,559 | 55,217 |
| Jordan | 30 | 1,950 | 61,500 | 8,375 | 28,091 | 19,735 | 14,495 | 24,312 | 14,226 |
| Lebanon | 14,901 | 7,173 | 9,926 | 7,924 | 9,704 | 13,391 | 9,743 | 14,594 | 4,992 |
| Palestine | | | 5,180 | 4,125 | 2,934 | 2,274 | 2,808 | 8,007 | 1,177 |
| Total Arab 1 | 116,292 | 57,551 | 132,480 | 57,279 | 124,212 | 93,561 | 101,137 | 206,472 | 75,611 |
| Arab 2 | | | | | | | | | |
| Libya | 7,310 | 22,000 | 21,400 | | 15,000 | | 48,007 | 73,052 | 41,989 |
| Saudi Arabia | 3,131 | 3,761 | 5,150 | 2,001 | 1,637 | 1,051 | 6,382 | 6,034 | 2,993 |
| UAE | 886 | 1,688 | 1,320 | 3,597 | 3,583 | 4,017 | 5,313 | 5,432 | 1,397 |
| Kuwait | | | 794 | 408 | 1,400 | 622 | 1,282 | 3,416 | 235 |
| Iraq | | | | | 5,000 | | | 88 | |
| Other Arab 2 | | | | | | | | 501 | 118 |
| Total Arab 2 | 11,327 | 27,449 | 28,664 | 6,006 | 26,620 | 5,690 | 60,984 | 88,523 | 46,732 |
| NIS/EE | | | | | | | | | |
| Russia | | | 12,179 | 5,917 | 7,797 | 419 | 538 | 16,310 | |
| Albania | 1,850 | 150 | 11,595 | 3,960 | 9,884 | 12,651 | 5,600 | 9,302 | 2,200 |
| Romania | | 5,970 | 49,199 | 37,098 | 49,321 | 52,380 | 37,331 | 84,221 | 44,695 |
| Bulgaria | | | 17,931 | 10,637 | 8,145 | 10,266 | 5,735 | 10,627 | 3,028 |
| Ukraine | | | 8,087 | 9,361 | 22,244 | 6,721 | 3,478 | 37,703 | 5,500 |
| Uzbekistan | | | 6,150 | 1,384 | | | | 60 | |
| Macedonia | 5,000 | | 1,000 | | | | | 0 | |
| Yugoslavia | | | 534 | 1,662 | 875 | 54 | | 43 | |
| Hungary | | | | 1,000 | 632 | 3,570 | | 732 | 44 |
| Czech./Slovenia | | | | | 1,950 | 412 | | 1,972 | 426 |
| Georgia | | | | | 2,651 | | | 0 | |
| Moldova | | | | | 43 | 150 | | 475 | 1,225 |
| Other NIS/EE | | | | | | | | 993 | 1,916 |
| Total NIS/EE | 6,850 | 6,120 | 106,675 | 71,019 | 103,541 | 86,623 | 52,682 | 162,437 | 59,034 |
| W. Europe | | | | | | | | | |
| Spain | 13,410 | | 8,201 | 375 | 7,994 | 2,187 | 148 | 3,905 | 66 |
| Switzerland | | | 6,200 | | | | | | 108 |
| Greece/Cyprus | 3,143 | 1,844 | 2,810 | 393 | 1,858 | 2,813 | 1,578 | 10,769 | 3,849 |
| Germany | 1,530 | | | | | 743 | 1,188 | 253 | 31 |
| Italy | 3,430 | | | 100 | 100 | 1,638 | 619 | 487 | 0.45 |
| Netherlands | | | | | | 315 | 669 | 2,879 | |
| England | | | | | | | | 12,378 | 6,193 |

| Country | 1993/94 | 1994/95 | 1995/96 | 1996/97 | 1997/98 | 1998/99 | 1999/00 | 2000/01 | 2001/02 |
|---|---|---|---|---|---|---|---|---|---|
| Other WE | | | | 247 | 400 | | | 11,104 | 4,102 |
| Total WE | 21,513 | 1,844 | 17,211 | 1,115 | 10,352 | 7,696 | 4,202 | 41,775 | 14,350 |
| Africa | | | | | | | | | |
| Sudan | 13,606 | 9,423 | 20,943 | 13,184 | 19,831 | 16,178 | 36,503 | 35,418 | 15,050 |
| Tunisia | 3,250 | | | | | | | 0 | |
| Morocco | | | | 100 | | 220 | | 590 | 494 |
| Cote d'Ivoire | | | | | 4,501 | | 106 | 19,360 | 1,500 |
| Senegal | | | | | | 3,300 | | 14,555 | |
| Kenya | | | | | | 15,575 | 11,565 | 12,524 | 425 |
| Tanzania | | | | | | | | 18,282 | 507 |
| Other Afr. | | | | | | 4,000 | | 40,465 | 754 |
| Total Africa | 16,856 | 9,423 | 20,943 | 13,284 | 24,332 | 39,273 | 48,174 | 141,193 | 18,731 |
| Asia | | | | | | | | | |
| Japan | | | | 153 | 153 | | 107 | 0.01 | |
| Total Asia | | | | 153 | 153 | | 107 | 132 | 132 |
| Others | | | | | | | | | 25 |
| Israel | 4,431 | 3,057 | 1,356 | | 714 | 651 | | 3,214 | |
| Others | 1,961 | 2,652 | 5,149 | | 400 | 7,830 | | 79 | |
| Total Others | 6,392 | 5,709 | 6,505 | 0 | 1,114 | 8,481 | 0 | 3,293 | 0 |
| Grand Total | 251,744 | 127,835 | 355,229 | 166,163 | 408,193 | 308,223 | 333,694 | 756,774 | 272,278 |

**Source: GOEIC, Ministry of Economy and Foreign Trade**

**Notes:** **1) For the year 1996/97, Romania's export figures include Hungary, and others' export figures include Japan, Morocco and Italy.**

**2) It appears as if some countries' exports are reported in "Others" when volume is below 1,000 tons.**

**3) Exports to other African countries for 1998/99 include 4,000 mt to South Africa.**

**4) The grand total for exports by country exceeds the reported total of exports by shipper for 2000/01. The source of discrepancy (1,340 mt) is unclear.**

**5) In 2000/01, Sierra Leone imported 15,402 mt. Other African countries importing that year were Guinea (17,153 mt), Congo (3,060 mt) and South Africa (18 mt).**

**6) Rice export data for 2001/02 are through early June 2002.**

**Table 10: Shares of Egyptian Rice Exports by Private and Public Exporters, 1996/97-2001/02**

**(metric tons)**

| | 1996/97 | | 1997/98 | | 1998/99 | | 1999/00 | | 2000/01 | | 2001/02 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Volume | % | Volume | % | Volume | % | Volume | % | Volume | % | Volume | % |
| Private Exporters | | | | | | | | | | | | |
| Top Five (1-5) | 78,500 | 52.6% | 208,582 | 51.0% | 158,581 | 51.5% | 182,300 | 54.9% | 277,089 | 36.5% | 72,481 | 26.5% |
| Second Five (6-10) | 20,427 | 13.7% | 34,890 | 8.5% | 31,504 | 10.2% | - | - | 138,217 | 18.2% | 40,641 | 14.9% |
| Next Ten (11-20) | 15,326 | 10.3% | 32,631 | 8.0% | 31,191 | 10.1% | - | - | 122,192 | 16.1% | 43,600 | 15.9% |
| Other Private | 25,340 | 17.0% | 43,676 | 10.7% | 53,271 | 17.3% | - | - | 110,564 | 14.6% | 31,524 | 11.5% |
| Total Private | 139,593 | 93.6% | 319,779 | 78.2% | 274,546 | 89.1% | 305,923 | 92.1% | 648,063 | 85.3% | 188,246 | 68.8% |
| | | | | | | | | | | | | |
| Public Exporters | | | | | | | | | | | | |
| Top Two (1-2) | 8,341 | 5.6% | 46,235 | 11.3% | 25,054 | 8.1% | - | - | 104,535 | 13.8% | 81,033 | 29.6% |
| Next Two (3-4) | 998 | 0.7% | 27,315 | 6.7% | 7,020 | 2.3% | - | - | 5,159 | 0.7% | 3,806 | 1.4% |
| Other Public | 200 | 0.1% | 15,789 | 3.9% | 1,602 | 0.5% | - | - | 1,678 | 0.2% | 344 | 0.1% |
| Total Public | 9,539 | 6.4% | 89,339 | 21.8% | 33,676 | 10.9% | 26,399 | 7.9% | 111,372 | 14.7% | 85,183 | 31.2% |
| | | | | | | | | | | | | |
| GRAND TOTAL | 149,132 | 100.0% | 409,118 | 100.0% | 308,221 | 100.0% | 332,322 | 100.0% | 759,435 | 100.0% | 273,429 | 100.0% |

**Source: MEFT/GOEIC**

**Note: 1) 1997/98 figures are through 14 October 1998. 1996/97 figures are partial, because final exports (reported in a 1997/98 publication were 166,163 mt. 1998/99 figures are through 15 September 1999. 2000/2001 figures are through the end of September 2001, while 1999/2000 figures are not completely available. 2001/02 figures are through 5 June 2002.**

**2) Rounding of 1998/99 figures leads to minor discrepancies in subtotals and totals.**

## Table 11: Monthly Volume and Value of Egyptian Rice Exports & Calculated Unit Values, September 1997 to November 2001

| Year | Month | Value (mill. LE) | Value (mill. $) | Quantity (mt) | Unit Value (LE/mt) | Unit Value ($/mt) |
|---|---|---|---|---|---|---|
| 1997 | August | 13.3 | 3.9 | 10,625 | 1251 | 368 |
| | September | 16.9 | 5.0 | 13,893 | 1220 | 359 |
| | October | 23.2 | 6.8 | 17,425 | 1329 | 391 |
| | November | 40.5 | 11.9 | 37,385 | 1084 | 319 |
| | December | 42.3 | 12.4 | 37,765 | 1119 | 329 |
| 1998 | January | 40.5 | 11.9 | 36,114 | 1121 | 330 |
| | February | 27.5 | 8.1 | 24,380 | 1127 | 332 |
| | March | 22.6 | 6.7 | 21,110 | 1072 | 315 |
| | April | 23.0 | 6.8 | 22,316 | 1033 | 304 |
| | May | 33.2 | 9.8 | 34,636 | 960 | 282 |
| | June | 49.4 | 14.5 | 43,019 | 1149 | 338 |
| | July | 31.2 | 9.2 | 29,948 | 1041 | 306 |
| | August | 23.5 | 6.9 | 23,413 | 1003 | 295 |
| | September | 22.5 | 6.6 | 23,477 | 960 | 282 |
| | October | 34.5 | 10.1 | 39,747 | 868 | 255 |
| | November | 53.7 | 15.8 | 69,151 | 776 | 228 |
| | December | 95.3 | 28.0 | 54,419 | 1750 | 515 |
| 1999 | January | 31.1 | 9.1 | 35,217 | 882 | 260 |
| | February | 35.9 | 10.6 | 46,058 | 780 | 229 |
| | March | 48.1 | 14.1 | 46,701 | 1029 | 303 |
| | April | 17.9 | 5.2 | 18,969 | 941 | 276 |
| | May | 17.1 | 5.0 | 16,221 | 1056 | 310 |
| | June | 6.9 | 2.0 | 6,890 | 997 | 293 |
| | July | 7.9 | 2.3 | 7,406 | 1068 | 313 |
| | August | 3.4 | 1.0 | 3,133 | 1087 | 319 |
| | September | 13.9 | 4.1 | 12,859 | 1079 | 316 |
| | October | 41.6 | 12.2 | 43,840 | 948 | 278 |
| | November | 44.2 | 13.7 | 44,216 | 1000 | 310 |
| | December | 27.9 | 8.2 | 25,357 | 1101 | 322 |
| 2000 | January | 9.2 | 2.7 | 9,115 | 1013 | 296 |
| | February | 20.1 | 5.9 | 20,340 | 989 | 289 |
| | March | 19.8 | 5.8 | 18,553 | 1066 | 311 |
| | April | 22.9 | 6.7 | 21,939 | 1045 | 305 |
| | May | 38.1 | 11.1 | 36,690 | 1038 | 302 |
| | June | 28.4 | 8.2 | 26,260 | 1080 | 314 |
| | July | 18.0 | 5.2 | 17,495 | 1031 | 298 |
| | August | 19.4 | 5.6 | 19,295 | 1006 | 289 |
| | September | 44.9 | 12.8 | 41,046 | 1093 | 312 |
| | October | 43.1 | 12.3 | 46,309 | 931 | 265 |
| | November | 42.8 | 12.0 | 45,588 | 939 | 264 |
| | December | 54.0 | 14.6 | 57,403 | 941 | 254 |
| 2001 | January | 41.0 | 11.1 | 53,691 | 764 | 206 |
| | February | 38.6 | 10.0 | 44,884 | 861 | 223 |
| | March | 26.3 | 6.8 | 34,729 | 757 | 196 |
| | April | 33.6 | 8.7 | 42,351 | 793 | 206 |
| 2001 | May | 37.5 | 9.7 | 50,159 | 747 | 193 |
| | June | 44.5 | 11.5 | 59,363 | 750 | 194 |

| Year | Month | Value (mill. LE) | Value (mill. $) | Quantity (mt) | Unit Value (LE/mt) | Unit Value ($/mt) |
|---|---|---|---|---|---|---|
| | July | 84.8 | 21.9 | 109,005 | 778 | 201 |
| | August | 68.4 | 17.5 | 85,770 | 798 | 204 |
| | September | 78.1 | 18.7 | 101,965 | 765 | 184 |
| | October | 25.4 | 6.1 | 31,449 | 807 | 194 |
| | November | 32.7 | 7.9 | 40,014 | 817 | 196 |
| | December | 48.0 | 10.6 | 41,067 | 1168 | 259 |
| 2002 | January | 32.3 | 7.2 | 34,561 | 936 | 207 |
| | February | 34.8 | 7.7 | 32,883 | 1059 | 234 |
| | March | 30.5 | 6.7 | 28,325 | 1076 | 238 |

**Source: CAPMAS.**

**Notes: 1) Calculated unit values for some months appear to be exceptionally low (October 1999) or exceptionally high (December 1998).**

**2) These unit values are for the predominant traded category, "rice, whether polished or not." "Rice, brokens", "rice, husked" and "rice, paddy" are relatively minor traded rice categories which are not included in the aggregate volume or value data presented above. The unit value calculations are therefore for ""rice, whether polished or not" only. If data for the minor exported rice categories were included in the aggregate value and volume figures, the calculated unit values would be marginally lower, as the minor types of rice are worth less.**

## Table 12: Egyptian Rice Export Prices, November 2000-March 2002

| Year | Month | 177,101,102 | | | | | | Giza 178 | | | | | | Long-Grain Competitors | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 | Cargo | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 | Cargo | Grade B | Broken | Grain 2/4 | 5% Broken |
| 2000 | Nov. | 263 | 255 | 238 | | | 206 | 237 | 222 | 218 | 204 | 196 | 190 | 194 | 188 | 280.5 | 180 |
| | Dec. | 262 | 247 | 235 | | 220 | 206 | 237 | 221 | 212 | 204 | 198 | 190 | 185 | 181 | 286 | 171 |
| 2001 | Jan. | 262 | 247 | 235 | | 220 | 206 | 237 | 221 | 212 | 204 | 198 | 190 | 183 | 178 | 286 | 170 |
| | Feb. | 265 | 250 | 240 | | 222 | 225 | 240 | 225 | 215 | 210 | 205 | 193 | 193 | 186 | 286 | 162 |
| | March | | | | | | | | | | | | | | | | |
| | April | 230 | 215 | 203 | | 188 | 190 | 215 | 200 | 188 | 183 | 178 | 178 | 171 | 162 | 280.5 | 148 |
| | May | 200 | 192 | 185 | 181 | 177 | 185 | 161 | 153 | 144 | 140 | 136 | 156 | 172 | 164 | 253 | 144 |
| | June | | | | | | | | | | | | | 170 | 161 | 275 | 154 |
| | July | | | | | | | | | | | | | 178 | 168 | 275 | 150 |
| | Aug. | | | | | | | | | | | | | 172 | 165 | 270 | 170 |
| | Sept. | 214 | 206 | 198 | 194 | 190 | 206 | 175 | 167 | 158 | 153 | 149 | 175 | 178 | 173 | 242 | 174 |
| | Oct. | 227 | 220 | 214 | 213 | 210 | 206 | 203 | 195 | 192 | 189 | 187 | 185 | 174 | 170 | 226 | 175 |
| | Nov. | 233 | 224 | 218 | 216 | 213 | 203 | | 198 | 194 | 192 | 189 | 185 | 174 | 168 | 226 | 182 |
| | Dec. | | 302 | 295 | 260 | | 203 | | 250 | 235 | 231 | | 210 | 182 | 176 | 220 | 192 |
| 2002 | Jan. | 298 | 287 | 275 | 271 | | 255 | 263 | 255 | 253 | 253 | | 235 | 184 | 178 | 198 | 197 |
| | Feb. | 302 | 295 | 298 | | | | 281 | 273 | 268 | | | | 200 | 194 | 192.5 | 187 |
| | March | 322 | 315 | 309 | 308 | 301 | 272 | 302 | 294 | 289 | 287 | 282 | 262 | 196 | 190 | 191.4 | 168 |
| | April | 312 | 325 | 299 | 298 | 291 | 262 | 292 | 284 | 279 | 277 | 272 | 252 | 190 | 185 | 192.5 | 180 |
| | May | 314 | 307 | 300 | 298 | 291 | 274 | 298 | 284 | 280 | 277 | 272 | 261 | 200 | 193 | 192.5 | 191 |
| | June | 320 | 313 | 306 | 302 | 296 | 280 | 304 | 296 | 290 | 286 | 281 | 267 | 207 | 200 | 191.4 | 197 |
| % Price Increase * | | 49.5% | 51.9% | 54.5% | 55.7% | 55.8% | 35.9% | 73.7% | 77.2% | 83.5% | 86.9% | 88.6% | 52.6% | 16.3% | 15.6% | -20.9 % | 13.2% |

**Source: London Rice Brokers' Association, Monthly *Circulars***

*** This is a calculation of the percentage increase in prices from the beginning of the marketing season in September 2001 until June 2002.**

**Notes: 1) As of November 2000, LRBA began to report prices by variety. Gizas 177 and Sakha 101/102 command higher prices than Giza 178.**

**2) LRBA reported that in June 2001, "Current quotes vary hugely between exporters due to the disturbed state of the market and cannot sensibly be reported."**

**3) There were no export price quotes in July or August 2001 (perhaps due to thinly traded volumes).**

## Table 13: Monthly Export Prices (FOB) for Egyptian Rice, by Major Importing Country, June 1999 till August 2001

| Year | Month | Syria | Jordan | Turkey | Romania | Saudi Arabia | Sudan | Palestine |
|---|---|---|---|---|---|---|---|---|
| 1999 | June | 324 | 150 | 480 | 171 | 165 | | |
| | July | 290 | | 424 | 250 | 438 | | 300 |
| | August | | | 424 | 163 | | | 300 |
| | September | 322 | 371 | 375 | 249 | 384 | 243 | 284 |
| | October | 288 | 355 | 286 | 186 | 576 | 300 | 306 |
| | November | 303 | 350 | 332 | 213 | 325 | 316 | 262 |
| | December | 311 | 341 | 343 | 250 | 327 | 274 | 271 |
| | Average | 306 | 313 | 381 | 212 | 369 | 283 | 287 |
| 2000 | January | 327 | 296 | 282 | 280 | 333 | 302 | |
| | February | 291 | 308 | 326 | 204 | 309 | 250 | |
| | March | 330 | 283 | 190 | 364 | 275 | 352 | 257 |
| | April | 321 | 321 | 354 | 115 | 320 | 320 | 277 |
| | May | 337 | 369 | 376 | 180 | 385 | 297 | 297 |
| | June | 297 | 308 | 244 | 223 | 346 | 350 | 243 |
| | July | 304 | 350 | 246 | 253 | 300 | 286 | 296 |
| | August | 323 | 281 | 276 | 189 | 344 | 213 | 288 |
| | September | 299 | 284 | 243 | 174 | 332 | 273 | 266 |
| | October | 273 | 271 | 262 | 173 | 312 | 252 | 259 |
| | November | 270 | 264 | 246 | 149 | 282 | 235 | 255 |
| | December | 261 | 275 | 259 | 196 | 224 | 184 | 266 |
| | Average | 303 | 301 | 275 | 208 | 313 | 276 | 270 |
| 2001 | January | 264 | 256 | 207 | 172 | 245 | 230 | 300 |
| | February | 239 | 248 | 211 | 195 | 226 | 231 | 204 |
| | March | 222 | 225 | 207 | 150 | 264 | 171 | 218 |
| | April | 238 | 213 | 193 | 181 | 243 | 200 | 211 |
| | May | 197 | 193 | 181 | 180 | 202 | 195 | 259 |
| | June | 208 | 194 | 202 | 184 | 234 | 209 | |
| | July | 209 | 206 | 208 | 173 | 247 | 153 | 230 |
| | August | 208 | 240 | 187 | 202 | 258 | 194 | 204 |
| | September | 149 | 149 | 155 | 125 | 242 | 148 | 149 |
| | October | 151 | 248 | 203 | 227 | 230 | 147 | 188 |
| | November | 231 | 233 | 195 | 173 | 232 | 214 | 285 |
| | December | 221 | 247 | 208 | 154 | 219 | | 150 |
| | Average | 205 | 215 | 194 | 179 | 238 | 186 | 217 |
| 2002 | January | 210 | 227 | 199 | 177 | 275 | 189 | 154 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **February** | **252** | **266** | **201** | **161** | **261** | **197** | **137** |
| | **March** | **261** | **289** | **233** | **189** | **324** | **245** | |

**Source :CAPMAS**

**Note: Blank cells indicate that there were no observations (exports to a particular country) that particular month.**

## Table 14: Monthly Prices for Different Types of Internationally Traded Rice, August 1996 to June 2002

| Year | Month | Thai Long Grain Rice | | | | | Other Long Grain | | Average | Medium & Short Grain | | | | Jasmine 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 100% | 5% | 15% | 35% | A1 Special | Vietnam | U.S. #2, 4% | Farm | California | Asian SG | Austral. | Egyptian | |
| | | Grade | parboiled | broken | broken | 100% | 5% | Houston | Prices, US | No. 1, 4% | 5% | Med. Gr. | Unit Val. | Grade B |
| 1996/97 | August | 346 | 330 | 314 | 265 | 213 | | 446 | 222 | 441 | | 433 | 337 | |
| | September | 341 | 331 | 311 | 264 | 216 | | 452 | 220 | 441 | | 424 | 329 | |
| | October | 324 | 330 | 293 | 250 | 208 | | 449 | 213 | 433 | | 423 | 379 | |
| | November | 325 | 327 | 293 | 248 | 206 | | 438 | 207 | 430 | | 443 | 380 | |
| | December | 330 | 325 | 298 | 253 | 205 | | 430 | 216 | 430 | | 476 | 401 | |
| | January | 367 | 334 | 332 | 277 | 218 | | 435 | 219 | 424 | | 424 | 482 | |
| | February | 359 | 321 | 320 | 270 | 226 | | 455 | 222 | 402 | | 495 | 529 | |
| | March | 341 | 315 | 302 | 261 | 231 | | 463 | 224 | 397 | | 470 | 368 | |
| | April | 319 | 301 | 285 | 252 | 220 | | 463 | 227 | 397 | | 451 | 345 | |
| | May | 335 | 315 | 300 | 257 | 215 | | 463 | 224 | 397 | | 416 | 354 | |
| | June | 335 | 324 | 299 | 256 | 221 | | 463 | 218 | 397 | | 403 | 334 | |
| | July | 332 | 327 | 296 | 256 | 215 | | 446 | 222 | 397 | | 410 | 335 | |
| 1997/98 | August | 296 | 314 | 265 | 237 | 209 | 253 | 430 | 219 | 397 | | 357 | 368 | |
| | September | 280 | 304 | 254 | 231 | 203 | 253 | 419 | 217 | 397 | | 410 | 359 | |
| | October | 275 | 280 | 249 | 224 | 192 | 237 | 419 | 220 | 397 | | 415 | 391 | |
| | November | 261 | 261 | 237 | 213 | 181 | 244 | 419 | 214 | 397 | | 417 | 319 | |
| | December | 274 | 269 | 255 | 228 | 193 | 270 | 419 | 213 | 397 | | 438 | 329 | |
| | January | 299 | 279 | 278 | 236 | 186 | 259 | 419 | 209 | 397 | | 405 | 330 | |
| | February | 307 | 290 | 279 | 235 | 187 | 255 | 419 | 213 | 397 | | 428 | 332 | |
| | March | 306 | 284 | 278 | 235 | 193 | 280 | 410 | 210 | 392 | 220 | 401 | 315 | 650 |
| | April | 326 | 296 | 296 | 249 | 199 | 295 | 408 | 205 | 386 | 225 | 389 | 304 | 650 |
| | May | 328 | 299 | 299 | 248 | 197 | NQ | 408 | 207 | 386 | 225 | 459 | 282 | 625 |
| | June | 338 | 315 | 311 | 256 | 209 | 304 | 408 | 209 | 395 | 230 | 449 | 338 | 625 |
| | July | 337 | 315 | 304 | 255 | 211 | 305 | 408 | 211 | 402 | 232 | 392 | 306 | 625 |
| 1998/99 | August | 334 | 318 | 305 | 264 | 229 | 315 | 401 | 198 | 421 | 230 | 388 | 295 | 600 |
| | September | 332 | 317 | 304 | 269 | 241 | 311 | 391 | 207 | 441 | 225 | 396 | 282 | 575 |
| | October | 306 | 298 | 282 | 264 | 252 | 295 | 375 | 205 | 468 | 230 | 379 | 255 | 575 |
| | November | 278 | 275 | 260 | 248 | 234 | 285 | 386 | 198 | 445 | 230 | 442 | 228 | 570 |
| | December | 282 | 281 | 261 | 245 | 232 | 257 | 386 | 200 | 474 | 230 | 358 | 309 | 500 |
| | January | 308 | 303 | 283 | 252 | 234 | 245 | 383 | 200 | 474 | 230 | 416 | 260 | 500 |
| | February | 287 | 279 | 263 | 234 | 212 | 239 | 373 | 198 | 474 | 230 | 414 | 229 | 500 |
| | March | 263 | 254 | 239 | 213 | 197 | 228 | 367 | 196 | 474 | 225 | 416 | 303 | 495 |
| | April | 242 | 240 | 221 | 199 | 184 | 221 | 361 | 187 | 474 | 225 | 345 | 276 | 495 |
| | May | 252 | 249 | 229 | 202 | 184 | 229 | 344 | 181 | 474 | | 401 | 310 | 485 |
| | June | 262 | 251 | 240 | 217 | 200 | 238 | 333 | 182 | 506 | | 379 | 293 | 490 |
| | July | 259 | 248 | 241 | 220 | 209 | 230 | 331 | 182 | 518 | 230 | 363 | 313 | 400 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999/00 | August | 253 | 249 | 237 | 216 | 204 | 230 | 321 | 153 | 518 | | 413 | 319 | 414 |
| | September | 235 | 256 | 217 | 198 | 186 | 221 | 309 | 127 | 507 | | 391 | 316 | 447 |
| | October | 223 | 257 | 205 | 186 | 170 | 201 | 309 | 131 | 458 | 235 | 332 | 278 | 490 |
| | November | 236 | 268 | 216 | 195 | 172 | 217 | 300 | 132 | 445 | | 406 | 320 | 500 |
| | December | 240 | 252 | 221 | 195 | 155 | 227 | 298 | 134 | 445 | | 421 | 318 | 455 |
| | January | 249 | 250 | 229 | 195 | 153 | 230 | 293 | 132 | 441 | 250 | 368 | 316 | |
| | February | 252 | 248 | 225 | 191 | 158 | 208 | 284 | 129 | 441 | 240 | 376 | 289 | 445 |
| | March | 235 | 238 | 209 | 180 | 152 | 194 | 276 | 126 | 441 | 234 | 335 | 311 | 453 |
| | April | 225 | 229 | 200 | 173 | 148 | 175 | 269 | 126 | 441 | 217 | 345 | 305 | 444 |
| | May | 211 | 219 | 186 | 164 | 144 | 173 | 253 | 124 | 441 | 208 | 381 | 302 | 460 |
| | June | 210 | 218 | 183 | 161 | 140 | 175 | 248 | 128 | 441 | 199 | 341 | 314 | 485 |
| | July | 199 | 217 | 178 | 161 | 143 | 183 | 249 | 124 | 432 | 191 | 366 | 298 | 530 |
| 2000/01 | August | 193 | 208 | 175 | 160 | 144 | 183 | 254 | 123 | 419 | | 386 | 289 | 570 |
| | September | 185 | 192 | 170 | 157 | 143 | 176 | 257 | 126 | 408 | | 321 | 312 | 550 |
| | October | 193 | 200 | 176 | 157 | 137 | 178 | 271 | 123 | 375 | | 351 | 265 | 523 |
| | November | 191 | 190 | 173 | 153 | 128 | 177 | 276 | 124 | 349 | | 368 | 264 | 505 |
| | December | 190 | 188 | 173 | 153 | 129 | 170 | 276 | 123 | 334 | | 368 | 254 | 372 |
| | January | 190 | 189 | 174 | 153 | 135 | 168 | 276 | 128 | 317 | | 320 | 206 | 374 |
| | February | 190 | 184 | 174 | 152 | 134 | 163 | 276 | 126 | 290 | | 320 | 223 | 373 |
| | March | 182 | 174 | 165 | 142 | 126 | 151 | 276 | 122 | 276 | | 307 | 196 | 338 |
| | April | 170 | 164 | 154 | 135 | 121 | 147 | 276 | 123 | 258 | | 349 | 206 | 325 |
| | May | 172 | 171 | 154 | 138 | 123 | 153 | 276 | 113 | 243 | | 300 | 193 | 323 |
| | June | 177 | 180 | 158 | 144 | 130 | 154 | 276 | 110 | 243 | | 280 | 194 | 295 |
| | July | 177 | 198 | 160 | 148 | 137 | 156 | 276 | 116 | 243 | | 323 | 201 | 293 |
| 2001/02 | August | 174 | 202 | 160 | 149 | 149 | 176 | 268 | 112 | 243 | | 223 | 204 | 280 |
| | September | 178 | 213 | 166 | 156 | 156 | 173 | 243 | 105 | 220 | | 265 | 184 | 267 |
| | October | 174 | 213 | 165 | 155 | 146 | 177 | 243 | 96 | 287 | | 283 | 192 | 272 |
| | November | 178 | 198 | 168 | 157 | 134 | 191 | 226 | 90 | 287 | | 340 | 196 | 266 |
| | December | 184 | 197 | 173 | 160 | 134 | 192 | 220 | 90 | 287 | | 233 | 259 | 284 |
| | January | 197 | 193 | 184 | 170 | 143 | 193 | 220 | 87 | 287 | | | 207 | 271 |
| | February | 201 | 195 | 187 | 168 | 144 | 185 | 204 | 90 | 287 | | | 234 | 265 |
| | March | 198 | 190 | 182 | 166 | 146 | 172 | 201 | 90 | 287 | | | 238 | 280 |
| | April | 196 | 188 | 183 | 167 | 149 | 186 | 194 | 90 | 274 | | | | 275 |
| | May | 207 | 192 | 192 | 172 | 150 | 193 | 193 | 90 | 265 | | | | 275 |
| | June | 206 | 194 | 189 | 147 | 147 | 196 | 165 | 90 | 265 | | | | 294 |

**Sources: USDA/ERS *Rice Situation* monthly reports for US, Thai and Vietnamese prices. CAPMAS for Egyptian unit values. Trade sources for Asian short grain rice. ABARE for Australian rice price quotes.**

**Notes: 1) The Thai rice prices are nominal quotes collected by the U.S. Embassy. Vietnamese rice prices are quotes from industry sources.**

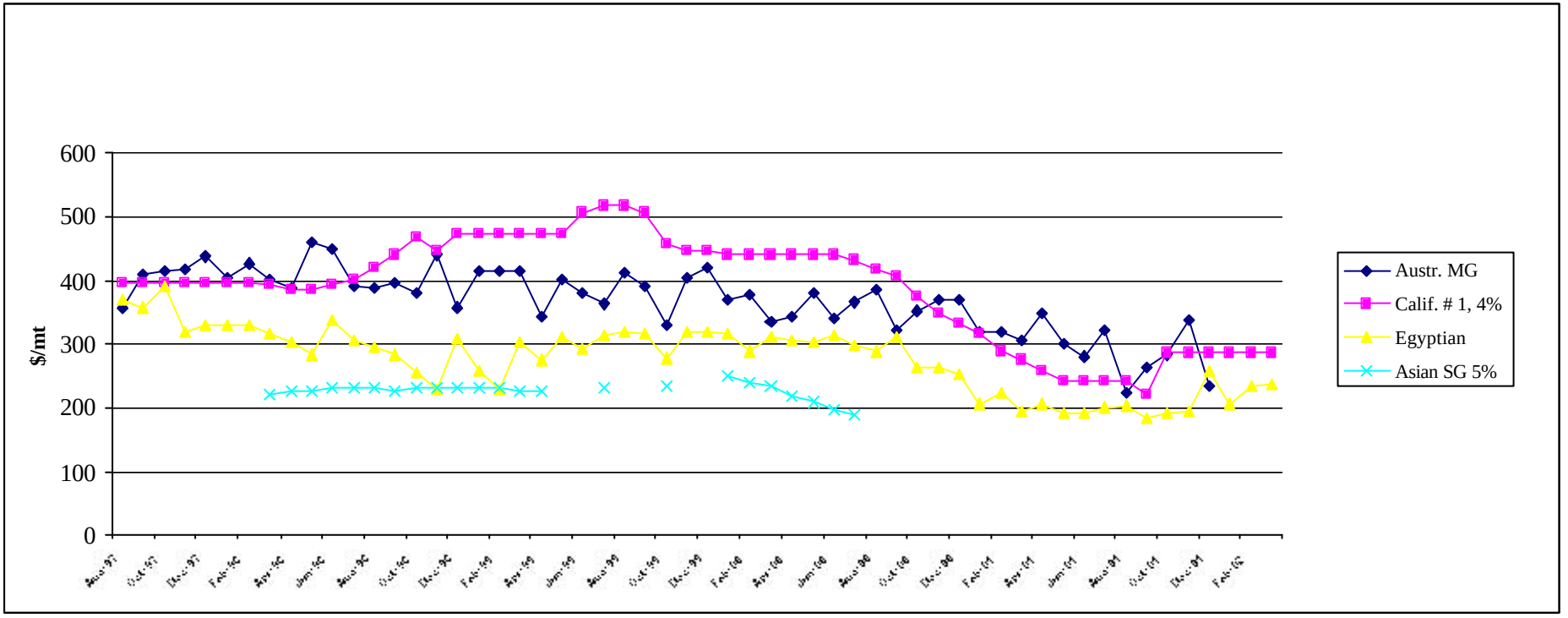
**2) US grade 2, 4% brokens is quoted from Houston. US medium grain is from California, grade 1, 4% brokens.**

**3) US farm prices are expressed in rough rice equivalent terms (and are reported as national monthly averages by USDA/ERS).**

**4) Egyptian rice prices are unit values calculated from total trade volume & value data. These are a crude measure and not a substitute for a consistent series of export prices for a key traded type, such as camolino grade 2. The Egyptian rice trade data are available with a lag of about three months.**

5) Asian short grain rice is most likely Chinese Japonica, for which prices are not published in any official source.

**Figure 5: Export Prices of Egyptian and Competing Rices, August 1997-March 2002**



## Table 15: Quantity of Rice Milled and Sold by Public/ESA Mills, 1981/82-2001/02

(1000mt)

| Fiscal Year | Paddy Production | Public Procurement Volume | Public Procurement (%) | Milled Rice | Milling Rate (%) | Export Sales[a] | Exports as % of Milled Rice | Domestic |
|---|---|---|---|---|---|---|---|---|
| 1981/82 | 2,236.4 | 1111.2 | 49.7 | 680.9 | 61.3 | 26.8 | 3.9% | 654.0 |
| 1982/83 | 2,440.5 | 1139.3 | 46.7 | 685.1 | 60.1 | 14.7 | 2.1% | 670.4 |
| 1983/84 | 2,440.0 | 1121.7 | 46.0 | 693.5 | 61.8 | 73.5 | 10.6% | 620.0 |
| 1984/85 | 2,235.1 | 960.7 | 43.0 | 572.1 | 59.6 | 15.7 | 2.7% | 556.5 |
| 1985/86 | 2,310.3 | 1087.3 | 47.1 | 675.8 | 62.2 | 44.0 | 6.5% | 631.7 |
| 1986/87 | 2,443.8 | 1127.8 | 46.1 | 717.4 | 63.6 | 105.5 | 14.7% | 611.9 |
| 1987/88 | 2,404.3 | 1175.7 | 48.9 | 750.3 | 63.8 | 108.4 | 14.4% | 641.9 |
| 1988/89 | 2,130.6 | 971.6 | 45.6 | 604.1 | 62.2 | 31.8 | 5.3% | 572.3 |
| 1989/90 | 2,676.1 | 1131.7 | 42.3 | 680.1 | 60.1 | 80.9 | 11.9% | 599.2 |
| 1990/91 | 3,166.1 | 1021.2 | 32.3 | 651.3 | 63.8 | 137.6 | 21.1% | 513.7 |
| 1991/92 | 3,446.6 | 885.7 | 25.7 | 600.3 | 67.8 | 176.8 | 29.5% | 423.5 |
| 1992/93 | 3,908.3 | 922.8 | 23.6 | 591.0 | 64.0 | 153.5 | 26.0% | 437.5 |
| 1993/94 | 4,147.6 | 572.4 | 13.8 | 468.2 | 81.8 | 271.7 | 58.0% | 196.5 |
| 1994/95 | 4,581.9 | 579.4 | 12.6 | 363.2 | 62.7 | 180.8 | 49.8% | 182.4 |
| 1995/96 [b,d] | 4,788.1 | 585.8 | 12.2 | 378.4 | 64.6 | 288.1 | 76.1% | 90.3 |
| 1996/97 [b,c] | 4,895.4 | 96.3 | 2.0 | 62.2 | 64.6 | 60.0 | 96.4% | 2.2 |
| 1997/98 [b,c] | 5,416.2 | 517.6 | 9.6 | 334.4 | 64.6 | 179.3 | 53.6% | 155.1 |
| 1998/99 [b,c,e] | 4,450.2 | 96.0 | 2.2 | 62.0 | 64.6 | | | |
| 1999/00[f] | 5,824.8 | 334.4 | 5.7 | 223.7 | 66.9 | 73.3 | 32.8% | 39.5 |
| 2000/01[f] | 6,000.5 | 207.0 | 3.4 | 138.1 | 66.7 | 112.5 | 81.5% | 9.3 |
| 2001/02[f] | 4,501.8 | 200.0 | 4.4 | 133.4 | 66.7 | | | |

**Source: MALR and Holding Co. for Rice and Flour Mills. This table is updated from the University of Arkansas study, 1995.**

**Figures from 1999/00 through 2001/02 were obtained from MVE interviews. They should be treated as approximations.**

**a-Quantity milled by or under control of public mills.**

**b-The milling conversion rate for 1995/96 through 1998/99 is assumed to be 64.6%. This rate is an average of four years, 1990/91 to 1994/95, excluding 1993/94, when the milling rate was reported as an implausibly high 81.8%.**

**c-The exported quantity of milled rice for 1996/97 was estimated (approx.) by the HC-RFM Chairman. 1997/98 exports are equal to total public sector rice exports plus an estimated 90,000 mt sold to private exporters. In both years, domestic sales are calculated as a residual (exported quantity - exports).**

**d-The paddy procurement figure for 1995/96 is estimated from milled rice. The initial figure for paddy purchased is implausibly low.**

**e-The utilization data for 1998/99 are incomplete and hence not reported.**

## Table 16: Average Total Cost, Total Revenue and Net Revenue for the Major Summer

| Years | Cotton | | | Rice | | | Maize | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | Total | Net | Total | Total | Net | Total | Total | Net Revenue |
| 1980 | 178 | 366 | 189 | 129 | 210 | 81 | 105 | 247 | 142 |
| 1981 | 240 | 449 | 209 | 163 | 246 | 83 | 139 | 199 | 59 |
| 1982 | 318 | 456 | 139 | 206 | 330 | 125 | 173 | 264 | 91 |
| 1983 | 369 | 474 | 105 | 230 | 335 | 104 | 212 | 367 | 156 |
| 1984 | 421 | 539 | 118 | 288 | 330 | 42 | 244 | 392 | 148 |
| 1985 | 450 | 694 | 244 | 311 | 566 | 255 | 294 | 458 | 165 |
| 1986 | 483 | 676 | 193 | 346 | 643 | 296 | 319 | 504 | 185 |
| 1987 | 509 | 743 | 234 | 390 | 550 | 161 | 327 | 605 | 279 |
| 1988 | 536 | 818 | 283 | 409 | 696 | 287 | 346 | 805 | 459 |
| 1989 | 557 | 1,065 | 508 | 440 | 1,027 | 587 | 419 | 1,053 | 633 |
| 1990 | 661 | 1,424 | 763 | 450 | 1,163 | 713 | 466 | 1,187 | 721 |
| 1991 | 752 | 1,925 | 1,173 | 603 | 1,414 | 810 | 552 | 1,231 | 679 |
| 1992 | 864 | 2,759 | 1,895 | 747 | 1,506 | 759 | 646 | 1,243 | 597 |
| 1993 | 955 | 2,949 | 1,994 | 839 | 1,697 | 858 | 724 | 1,309 | 586 |
| 1994 | 966 | 2,012 | 1,045 | 899 | 2,080 | 1,181 | 773 | 1,422 | 649 |
| 1995 | 1,025 | 3,180 | 2,154 | 983 | 2,322 | 1,339 | 842 | 1,430 | 588 |
| 1996 | 1,063 | 3,277 | 2,214 | 1,027 | 2,534 | 1,507 | 904 | 1,675 | 771 |
| 1997 | 1,200 | 3,298 | 2,098 | 1,058 | 2,637 | 1,579 | 880 | 1,865 | 985 |
| 1998 | 997 | 1,843 | 846 | 1,081 | 2,384 | 1,303 | 944 | 1,990 | 1,046 |
| 1999 | 1,092 | 2,178 | 1,086 | 1,072 | 2,849 | 1,777 | 911 | 2,145 | 1,234 |
| 2000 | 1,280 | 2,437 | 1,156 | 1,031 | 2,308 | 1,277 | 932 | 2,193 | 1,261 |

**Source: MALR**

**Note: The cost and revenue figures are national averages across all farm types and sizes. Hence, they are purely illustrative.**

**Figure 6: Real Net Revenue for the Major Summer Crops, 1980-2000**